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SEPTEMBER, 1953

Telephone and Management Engineer

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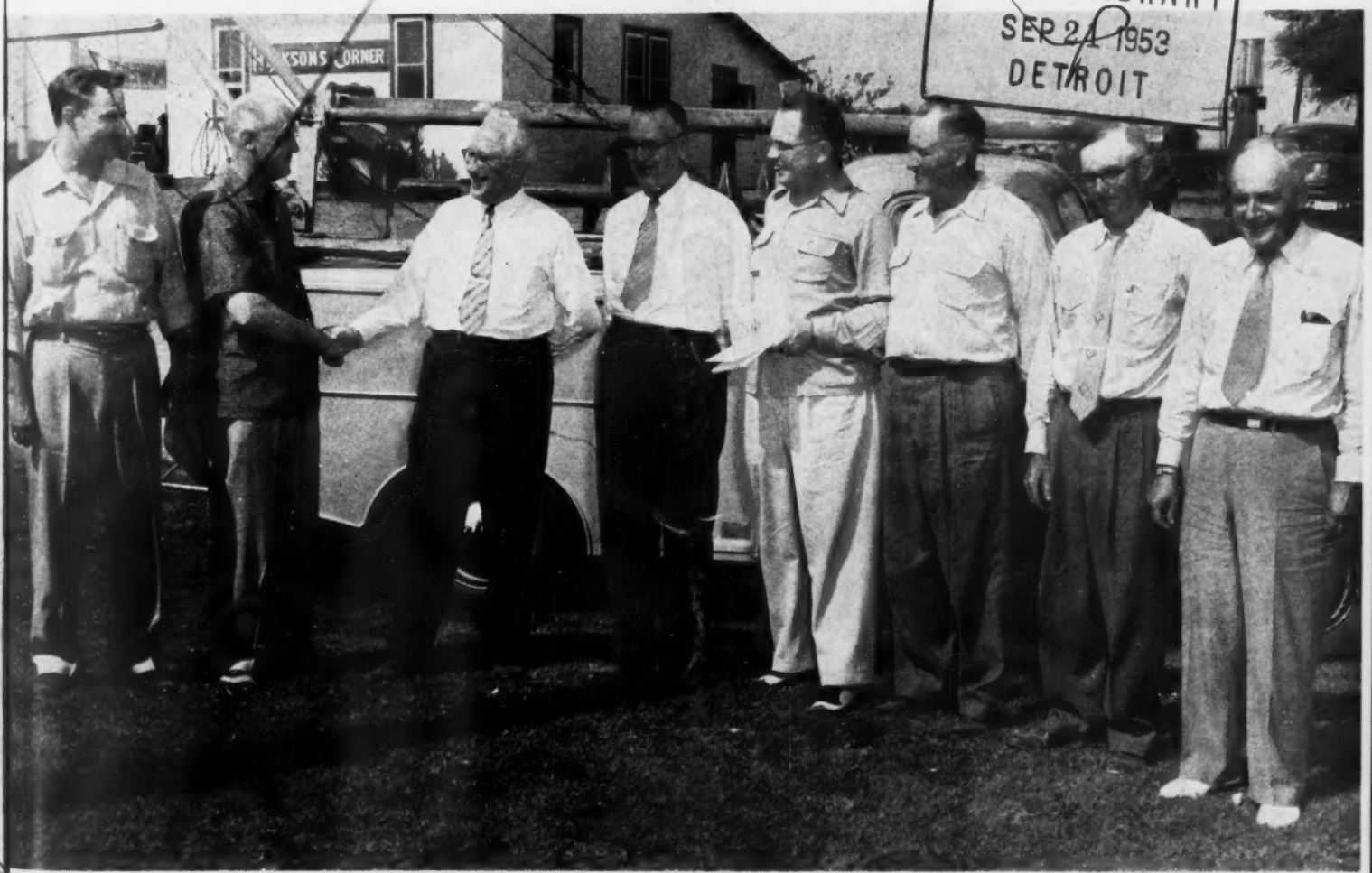

THE NATIONAL TELEPHONE MAGAZINE

Featuring In This Issue—

- Wintertime Maintenance, by John S. Reed
- New Ideas For Faster Job Performance, by Myrle Shafer
- New Materials and New Methods, by Richard Allen
- An American Story From Otter Creek, Ia., by John G. Reynolds

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TELEPHONE ENGINEER & MANAGEMENT

The National Telephone Magazine • Vol. 57, No. 9, September, 1953

RAY W. SMITH, Editor
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JOHN S. REED, Technical Advisor
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FRONT COVER: On July 31, 1950, 49 people from Otter Creek, Ia., got together to discuss their telephone problem. Three years later, on August 30, 1953 the Otter Creek Telephone Co. held open-house and dedicated its new dial system. Front cover photo was taken during dedication. Shown (l. to r.) are: Bob Zink, Maquoketa; C. C. Pearce, Riceville; Congressman Tom Martin, Iowa City; Howard Amick, Des Moines; Bill Miller, Des Moines; Leonard Stokesberry, vice-pres. and Frank Weiland, Pres., of the Otter Creek Tel. Co.; and Clyde McFarlin, Montezuma, Ia.

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ENDURPRENE

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Mostly About People—

Across The Editor's Desk

6,000,000th TELEPHONE

CONGRATULATIONS to the *Interstate Telegraph Co.* on its recent installation of the 6,000,000th telephone on the Pacific Coast. The historic telephone was installed Sept. 2 in the *Barstow*, Calif., home of a Marine veteran of the Korean war — *Master Sergeant* and *Mrs. Lionel P. Williams.*

The installation is a historical milestone. It is indicative of the scope of the demand of the Pacific Coast for communication. It is also indicative of the job that the Pacific Coast's telephone companies have done to meet the demand for communications in a war and post-war period when materials were not easy to secure.

In the past 40 years, Interstate Telegraph Co. has grown tremendously and this historical installation coming in the 40th year of the company's service has a double significance. It is a symbol both of the company's tremendous post-war accomplishments and the economic progress and prosperity of the Pacific Coast states. Interstate's services have helped make possible the Coast's rapid post-war agricultural and industrial strides and the company has matched them with its own expansion as it serves more and more people, while steadily maintaining its position as the third largest Independent telephone company in California.

W. C. AVERY DIES

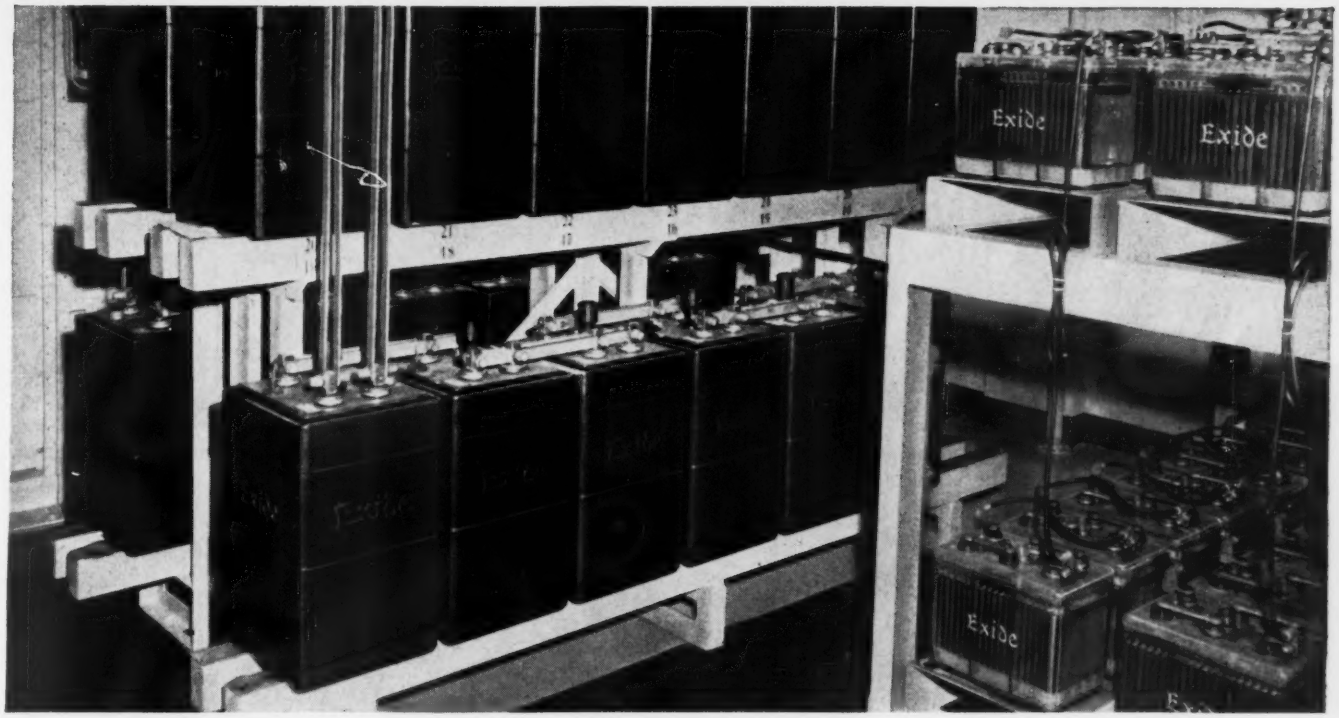
THE INDEPENDENT telephone industry lost a friend and a veteran associate Aug. 22 when *W. C. Avery*, chairman of board and president from 1944 to the early spring of 1950 of the *Mutual Telephone Co.* of Hawaii died in Honolulu. Mr. Avery had been succeeded on Mar. 28, 1950 by *J. Ballard Atherton* in the presidency.

Mr. Avery, a native of Le Roy, N. Y., and a graduate of Boston University had served with the Mutual Telephone Co. since 1921 and during his six-year presidency played a key role in the company's financing since he was an accountant by profession. After an early business career in the accounting department of the New York Central Railroad, Mr. Avery went to the Hawaiian Islands in 1912 and served as a teacher, school principal, inspector of schools and statistician until 1919 when he became secretary of the Hawaii Farm Loan Board.

He started with the Mutual Telephone Co. as chief accountant in 1921 and two years later was appointed assistant treasurer. In 1925 he was elected treasurer and a member of the board of directors. In 1937 he was elected secretary and treasurer and served in that capacity until he was selected for the company's presidency in 1944.

MADE YOUR RESERVATION?

It is not too early to begin making plans to attend 56th Annual Convention of United States Independent Telephone Association (USITA) in Chicago at the Conrad Hilton Hotel, October 12-13-14. Make your hotel reservations by writing directly to the hotel. USITA officers have been developing a program of speakers and topics for general sessions that will set a new record for interest and enlightenment. Chairman of the USITA Plant, Traffic, Commercial and Accounting Committees are engaged in constructing programs for important technical conferences. The Independent Telephone Pioneer Association is to have a prominent place on the convention program at the general session on Tuesday afternoon. Its business session will be followed by entertainment provided by the Purdue Varsity Glee Club. The annual convention banquet and entertainment will be held Oct. 13.



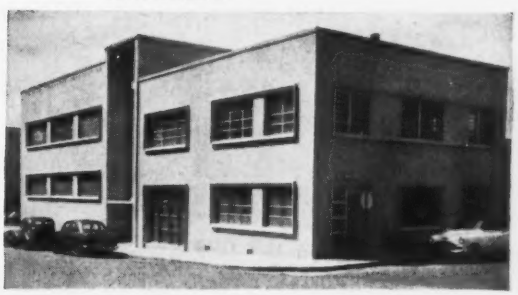
Battery on left is 26-cell FB-23 Exide in hard rubber containers. Battery on right is Exide Type PLX in multiple cell plastic containers.

8,000 SQUARE MILES SERVICED BY FLORIDA TELEPHONE CORPORATION

New Ocala Plant equipped with

Exide BATTERIES

The efficiently designed Ocala exchange is one out of a total of 28 exchanges operated by the Florida Telephone Corporation in 15 counties, and is the headquarters of the company.



Here's another example of telephone progress. The Florida Telephone Corporation expanded from about 9,000 stations in 1945 to 23,000 stations in 1952. Eighty-six communities, covering approximately 8,000 square miles, are now being furnished with telephone service. It is significant that the Ocala exchange of the Florida Telephone Corporation is completely equipped with Exide telephone batteries.

Only Exide Batteries offer these distinctive features:

POSITIVE OPERATION: Dependable performance for all telephone battery requirements—central office and private exchange equipment.

ADEQUATE RESERVE POWER for emergencies beyond normal needs.

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GREATER CAPACITY in a given amount of space avoids overcrowding of equipment.

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Exide is your best battery buy for all telephone services.

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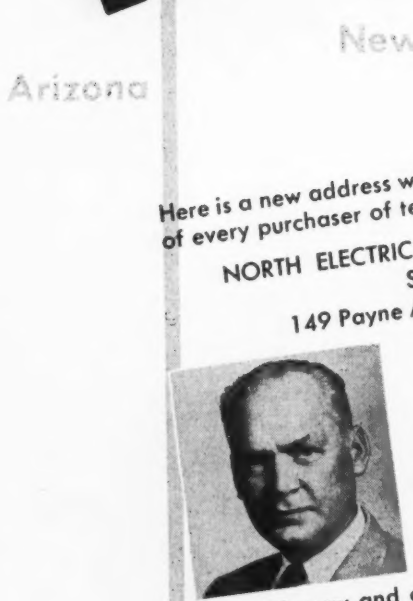
THE ELECTRIC STORAGE BATTERY COMPANY, Philadelphia 2 • *Exide Batteries of Canada, Limited, Toronto*

"EXIDE" *Reg. T.M. U.S. Pat. Off.*

NORTH Serves from DALLAS



Here is a new address which should be written in the handbook of every purchaser of telephone supplies in the Southwest . . .

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From this new and convenient location, all of Arizona, Texas, Oklahoma, New Mexico, Arkansas, and Louisiana, will get efficient spot delivery . . . set down where you want it, and when you want it, at the lowest possible delivery cost.

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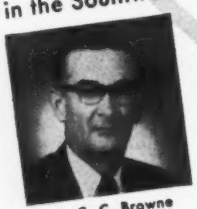
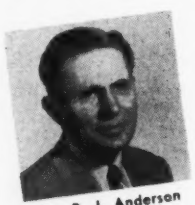


Mr. C. C. Browne
1025 S. 10th Street
Kingfisher, Oklahoma

Mr. A. T. Whitchurch
Box 137
Chama, New Mexico



Mr. R. J. Andersan
Dallas
Warehouse Manager

They will be glad to counsel with you on supplies, equipment or basic telephone engineering . . . to see that you get what you want . . . that you get the best . . . that you get it promptly.

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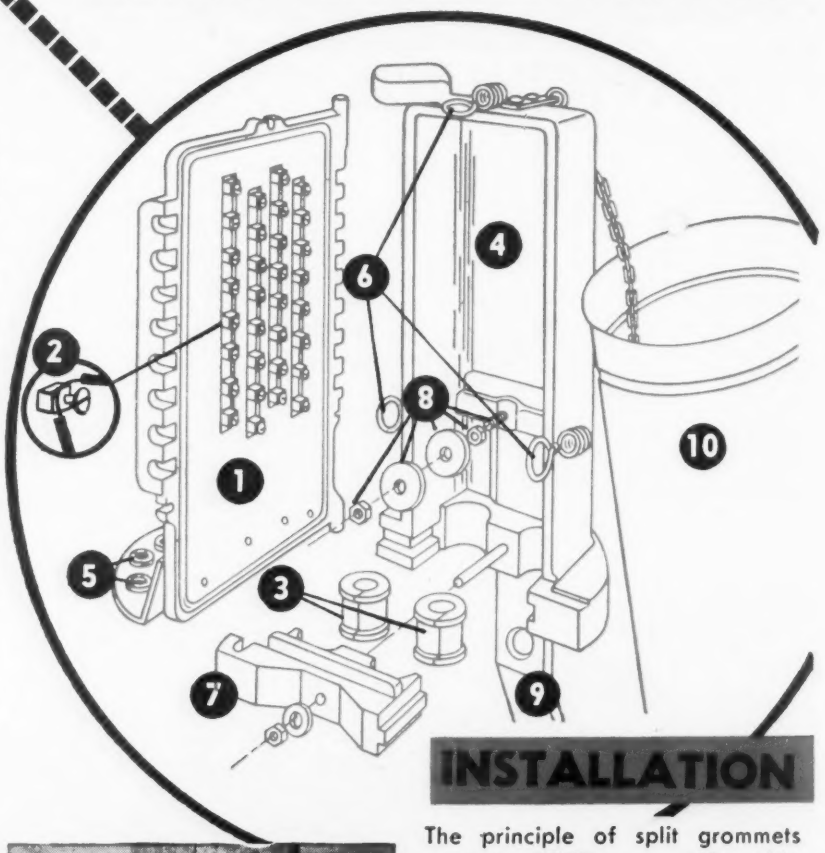
THE INSIDE STORY

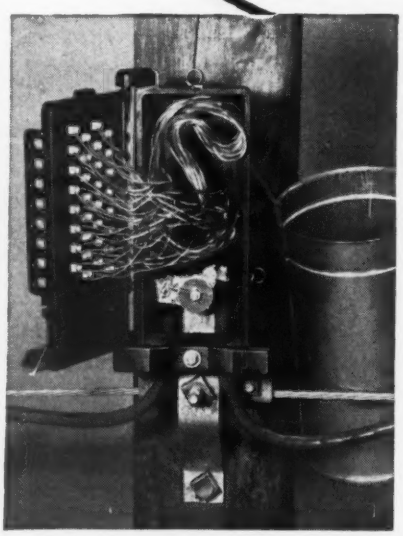
of TYPE MP CABLE TERMINALS

FOR PLASTIC INSULATED and JACKETED CABLE

DESIGN FEATURES

1. **BAKELITE FACE PLATE** — long creepage surfaces — low loss bakelite — hinged for easy access — gasket sealed to terminal case — convenient fanning strips on each side.
2. **TERMINALS** — plated high strength bronze — washer head screws on inside for cable connection — double nuts and washers on outside for drop wire connection — can be added or replaced in the field.
3. **SPLIT GROMMETS** — soft non-aging Neoprene rubber — allows cable to be looped through terminal without cutting or splicing.
4. **TERMINAL CASE** — insulating — high strength — moisture-proof — molded asbestos asphalt plastic.
5. **ENTRANCE GROMMETS** — non-aging Neoprene rubber — self-closing construction for enclosed drop wire entrance.
6. **SPRING CLIPS** — stainless steel — hold face plate closed with even gasket pressure — easy to fasten or release.
7. **LOCKING PLATE** — molded asbestos asphalt plastic — clamps cable and split grommets securely in place.
8. **GROUNDING POST** — grounded to mounting bracket — clamps cable shielding tape —provides both shield continuity and grounding.
9. **MOUNTING BRACKET** — heavy gauge metal — bolts directly to messenger thru-bolt — requires only one nut and one lag screw for mounting.
10. **ALUMINUM WEATHER COVER** — prevents moisture and insect entrance — non-corrosive — chained to case.





Pairs Terminated to Face Plate

Sold through Leading Distributors

INSTALLATION

The principle of split grommets used in RT&E's new MP cable terminal permits the cable to be looped into the terminal . . . the outer cable jacket and sheath peeled away, inside the terminal . . a small segment of insulation removed from the pairs to be connected to the face plate . . . the entire operation completed without cutting or splicing the cable . . . allows full access to all cable pairs.

VERSATILITY

Available for terminating 6, 11 or 16 pairs . . . will accommodate any size cable up to 101 pairs with range of grommets furnished . . . for larger size cables a 16-pair stub can be installed in the terminal and spliced to the cable in the conventional manner.

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RT&E Co.

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NEWSLETTER
TELEPHONE ENGINEER

Fortnightly TELEPHONE ENGINEER ★ TELEPHONE ENGINEER AND *Management*

ON THE 1st OF EACH MONTH ON THE 15th OF EACH MONTH

NEWSLETTERS *on Alternate Weeks*

September 15, 1953

Dear Sir:

Citing that the five separate opinions by the US Supreme Court in the Hope Natural Gas case clearly show there is no easy way of dealing with a determination of reasonable utility rates under the severe adverse impact of changing economic conditions, T. Baxter Milne, retired New England Telephone & Telegraph Co. general attorney, emphasized to the American Bar Association's Section of Public Utility Law Aug. 24 that "the united efforts of commissions, utility lawyers and management are all necessary if utilities are to have that eventual vigorous economic health so necessary if they are to be able to give the public better service at lower cost.

Mr. Milne expressed his belief that "there was and is a sound legal and economic basis for the concept of a 'fair value' rate base." He said that original cost as used in prescribed accounting systems – "aboriginal cost" describes it more correctly – does not present true picture of a utility's financial status.

* * *

Presentation of views of two outstanding state commissioners – New York Public Service Commission Chairman Benjamin F. Feinberg & Ohio Public Utilities Commissioner Ray O. Martin – on "state commission reorganization and administration" at final session of four-day 65th annual convention of the National Association of Railroad & Utilities Commissioners in New York Sept. 21-24 is expected to be a most significant period of discussion at the convention.

Opening Sept. 21 with an address by NARUC President Eugene S. Loughlin, Connecticut Commission Chairman, convention will move through number of discussions on regulatory matters, with telephone field to be subject at final session in afternoon of Sept. 24. New York Commissioner Spencer B. Eddy will present report of his special committee cooperating with FCC in studies of telephone regulatory problems & Chairman George R. Perrine of Illinois Commerce Commission will speak on regulation of small Independent telephone companies.

* * *

General Tel. Corp. & its subsidiaries had consolidated net income for first 7 months of 1953 of $7,409,000, compared with $4,565,000 for same period of last year. Consolidated net income for 12 months ended July 31 was $11,608,000 against $7,251,000 for 12 months ended July 31, 1952.

Consolidated operating revenues of telephone subsidiaries for 7 month period ended July 31 totaled $71,269,000, as compared with $56,764,000 for corresponding period of last year. For 12 months ended July 31, 1953, operating revenues totaled $116,509,000 against $94,805,000 for previous year.

Creation of an industrial relations department completes reorganization of top management structure of General Tel. Co. of Calif. which started in July. Maurice S. Strittmatter, formerly industrial relations manager of American Hoist & Derrick Co., St. Paul, Minn., has been named director of new industrial relations department. Most of duties to be assumed by Mr. Strittmatter have been carried out by Marshall Taylor, who will relinquish his title of personnel manager. Recently elected secretary, Mr. Taylor will also continue as attorney for company.

* * *

Top-level communications post in federal government's mobilization structure has been filled with selection of William A. Porter. He will assume duties formerly handled by Haraden Pratt, telecommunications advisor to President & recently transferred to the Office of Defense Mobilization by executive order.

Long-pending organizational changes at FCC and appointments of key staff personnel have begun with selection of Oswald Ryan for general cousel and resignation of Thomas J. Slowie, FCC secretary for more than 16 years.

* * *

National Production Authority (NPA) last month issued several orders. One ordered reductions in amounts of copper, copper-base alloy products which producers are to reserve for military & atomic orders for 1st 3 months of 1954. Included in order is reduction of 6% in amounts of wire mill products which producers must reserve for top priority orders. In 1st quarter of 1954, wire mills will set aside 20% of their output, instead of 26% currently in effect. Top priority reservation for foundry products will be 27% after Dec. 31.

* * *

United Utilities, Inc. has asked FCC to classify its operating telephone companies in Ind. & Ohio as connecting companies subject only to commission jurisdiction covered in section 2(b) (2) of Communications Act – routine accounting jurisdiction. Applications, filed by Pres. Ralph F. Lucier of United Tel. Co. & Ohio Tel. Service Co., bring out that companies have no interstate toll lines of their own.

* * *

Requests for rehearing on its order giving Carolina Telephone & Telegraph Co. rate increase of $537,210 annually has been denied by State Utilities Commission. "No reason has been given" by either company or state, through the Attorney General's office, in either petition "which has not been fully considered by the commission," the regulatory agency declared. Carolina Tel. & Tel. had asked for a $2,150,000 rate boost.

Ray Smith

Ray W. Smith, Editor

Western Electric installer in an aircraft plant connecting telephone equipment with a G-E soldering iron.

Western Electric Uses G-E Soldering Irons to Speed Vital Telephone Installations

For efficient soldering of millions of connections during the installation of telephone equipment, Western Electric uses G-E industrial soldering irons. Repeat orders testify to this company's satisfaction with G-E irons.

No matter what *your* soldering operation—intermittent or high-speed repetitive work—General Electric has the iron to meet your particular requirements. You'll find that G-E irons, equipped with the famous long-life Calrod* heating element, give you lower maintenance costs. You can choose durable, interchangeable calorized copper tips or, for even longer maintenance-free tip life, sturdy Ironclad copper tips. Ratings range from 25 to 1250 watts, tip sizes from $\frac{1}{8}$-inch to two inches.

Give G-E industrial soldering irons a chance to prove their lower over-all costs to you. Buy a few through your nearest G-E Sales Office or Apparatus Distributor, and keep cost comparison records on their performance. You will see for yourself that these irons will save you money. General Electric Company, Schenectady 5, N. Y.

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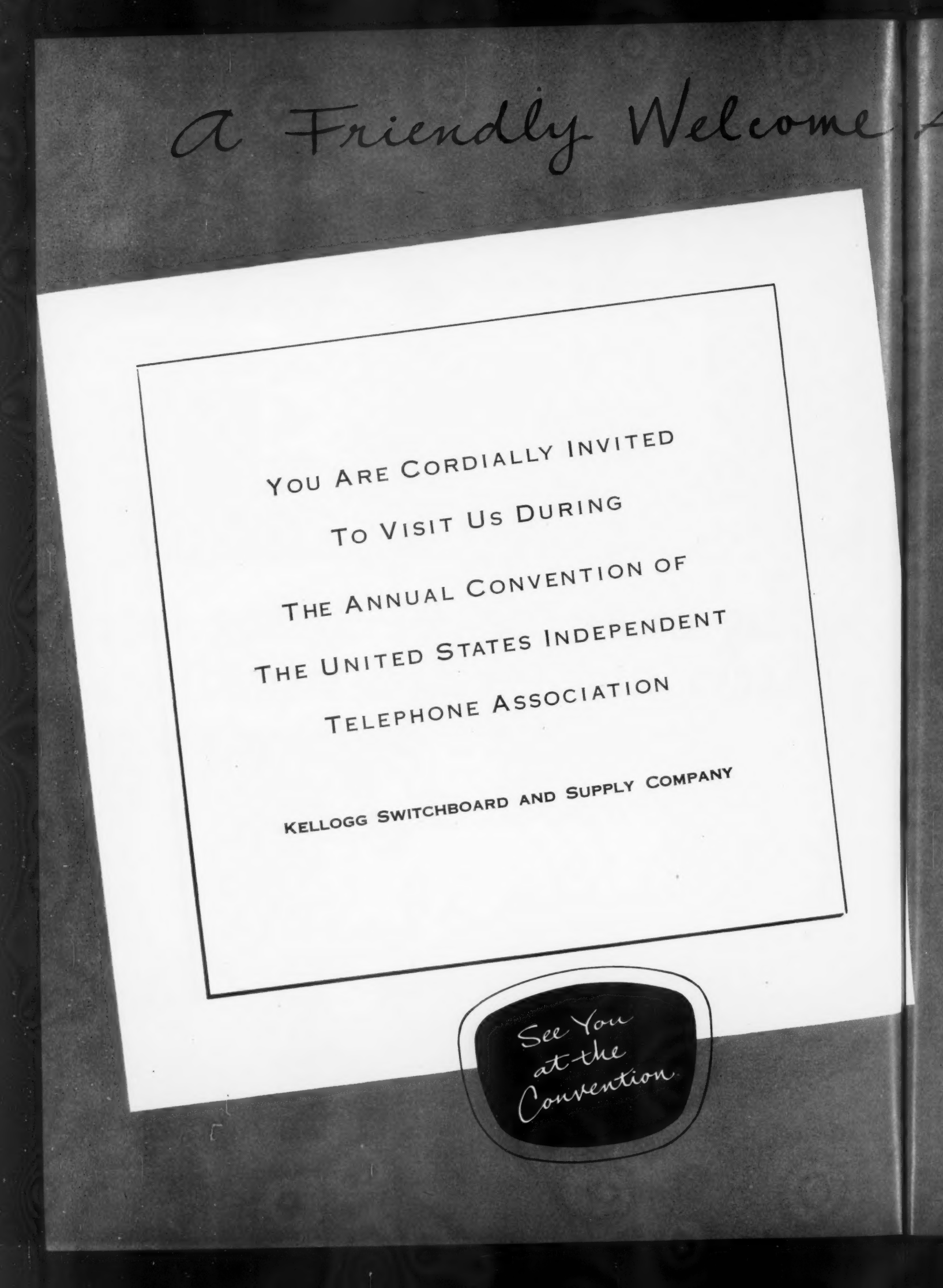
You can often replace heavy irons with this 120-volt, 60-watt lightweight iron for communications soldering.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OCTOBER 12 -- 13 -- 14

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Gould-National Batteries, Inc.
W. A. Hammond Drierite Company
Indiana Steel & Wire Company
Kester Solder Company
Lorain Products Corporation
National Carbon Company
A Division of Union Carbide and Carbon Corporation
National Telephone Supply Company
Newman Manufacturing Company
Ray-O-Vac Company
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Reliable Electric Company
M. M. Rhodes & Sons Company
R T & E Co.
Schauer Manufacturing Corp.
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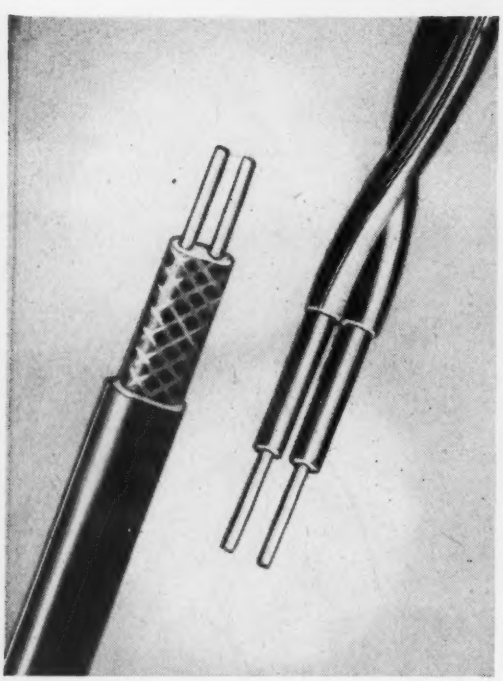
Power Cross Protection is now "ganged up" with the new Cook 5 Circuit Power Cross Protector. It provides a single assembly for 5 circuits to be mounted on a 10-pin arm requiring only a single ground wire. Made by COOK ELECTRIC COMPANY.

Your Battery Problems Are Solved when you put Gould Plante' and Flote' Batteries to work. Unique features of design cut maintenance and charging costs, lengthen life and reduce replacements. Made by GOULD-NATIONAL BATTERIES, INC.



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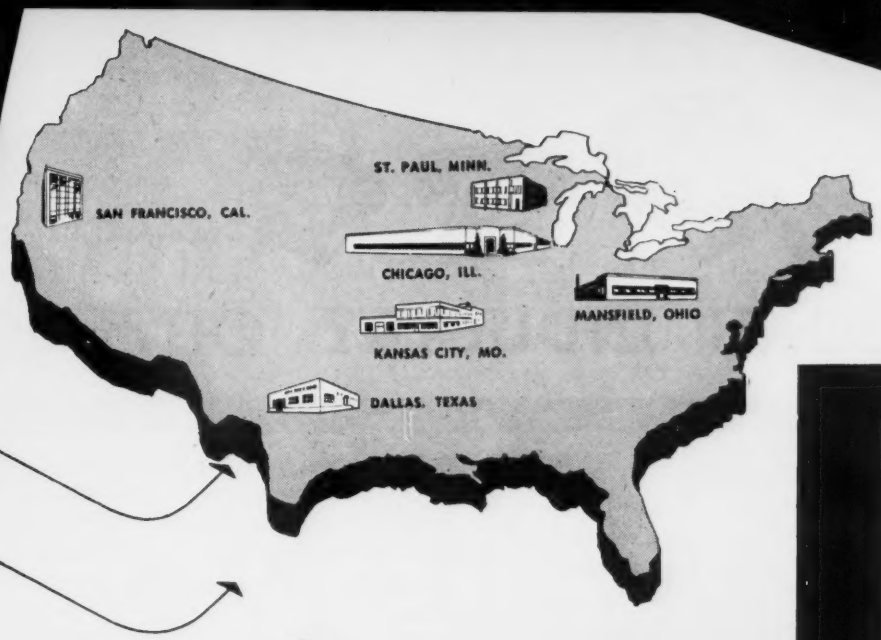

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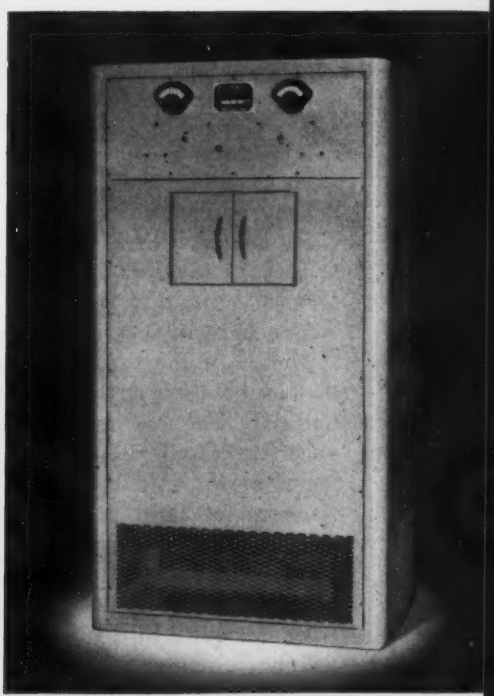
SAN FRANCISCO 3, CALIF.

410 No. Syndicate Ave.
"Midway Area"
ST. PAUL, MINNESOTA

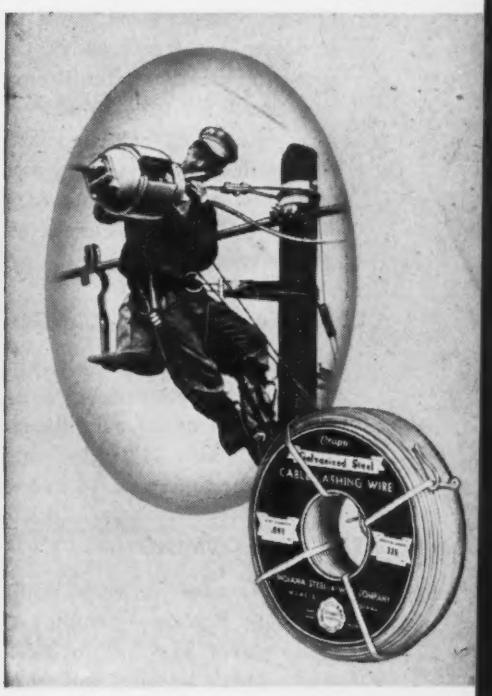
1515 Turtle Creek Blvd.
DALLAS 2, TEXAS



Automatic Constant Voltage Battery Charger! By adding the proper 3-phase FLOTROL to your exchange you can maintain full-floating operation, cut down running time on your rotary equipment, and save on your power bill. LORAIN PRODUCTS CORP.

Modern Cable Saves Money 3 Ways -Ansonia Ankoseal, the all-plastic, light-weight cable costs less to buy in the popular sizes, less to install, less to maintain. Available for aerial, duct and direct burial use. ANSONIA WIRE & CABLE COMPANY.

The Expanding Plates and Spreader Arms of Everstick Anchors insure 100% safety and maximum holding power under excessive strain. Ribbed base plate allows anchor to be locked solidly on rod. Quickly installed. Made by EVERSTICK ANCHOR CO.



For Use with Cable Spinners, is Crapo Galvanized Steel Lashing Wire. Heavily-galvanized; .091" diameter, comes in 325-ft. coils. "Stainless-Steel" Lashing Wire is also available in .045" and 0.65" diameters. INDIANA STEEL & WIRE COMPANY.

TELEPHONE INDUSTRY OUTLOOK

DURABILITY OF PROSPERITY

. . . apprehension over durability of prosperity is an economist's wordy way of wondering whether the top of the boom in business has been reached. Some circles are pessimistic, with plenty of peering around for weak spots in our economy. Others point to such prosperity props as bigger disposable incomes, huge savings and growth in population.

Middle of the road reasoning would seem to be the best bet these days for trying to figure the future. Certainly everyone must have an awareness of the uncertainties which wallow in the wake of such a boom as we've had. Among the uncertainties are: weakness of farm prices . . . declining appliance sales . . . the anticipated drop in auto and steel output . . . tighter money . . . an international cooling off period . . . declining rate of family formation. No one's quite sure what effect any or all of these will have on our economy. But the optimistic certainties seem to outweigh the pessimistic portens in most observers' eyes. Besides the high disposable incomes, huge savings and population growth, the favorable factors continue to be psychological, sociological and just plain, every day all out logical.

Worry over the effect of any governmental retrenchment has kept some markets uncertain and cautious. General estimates for defense expenditures indicate that any cutback can't be pronounced for some time. Defense requirements will hold near present levels for nine to 12 months. In addition, construction activity, in the first five months, topped '52 by six per cent. Business men plan boosting capital spending from now until early fall to a record 28.7 billion dollar rate. This is eight per cent above the 1952 average.

LONG HAUL GETTING LONGER

. . . telephone users are talking over longer distances these days. According to a recent analysis of Bell System toll usage over 24 miles, the average length of haul is now 218 miles compared with 136 in 1941 and a war-time peak of 213 miles.

TAX JOLT COMING

. . . in case you've forgotten — Jan. 1 will be big tax date. Reason — employers and employes are due for an over $1.2 billion tax jolt when social security tax on both workers and employers rises to 2% from present 1½%. Since tax is figured only on first $3,600 of each employe's wages, maximum amount to be withheld from any worker's check will rise from $54 to $72. Employers also will have to chip in $72 for any employe earning $3,600 or more. 83rd Congress did nothing about boost — but if there's special session this fall lawmakers could act to block the increase.

AT&T TO BORROW $625 MILLION

. . . new issue markets will soon have to absorb the largest single public offering ever made, when American Tel. & Tel. Co. puts up for sale about $625 million of convertible debentures.

The new financing is needed to continue construction of new facilities to meet still growing demands for telephone service, the company said.

The company revealed its plans last month in an-

Please Turn To Page 18

AMERICAN TELEPHONE & TELEGRAPH CO EARNINGS REPORT

(Includes earnings of subsidiaries only to the extent that they have been received by the Company as dividends)

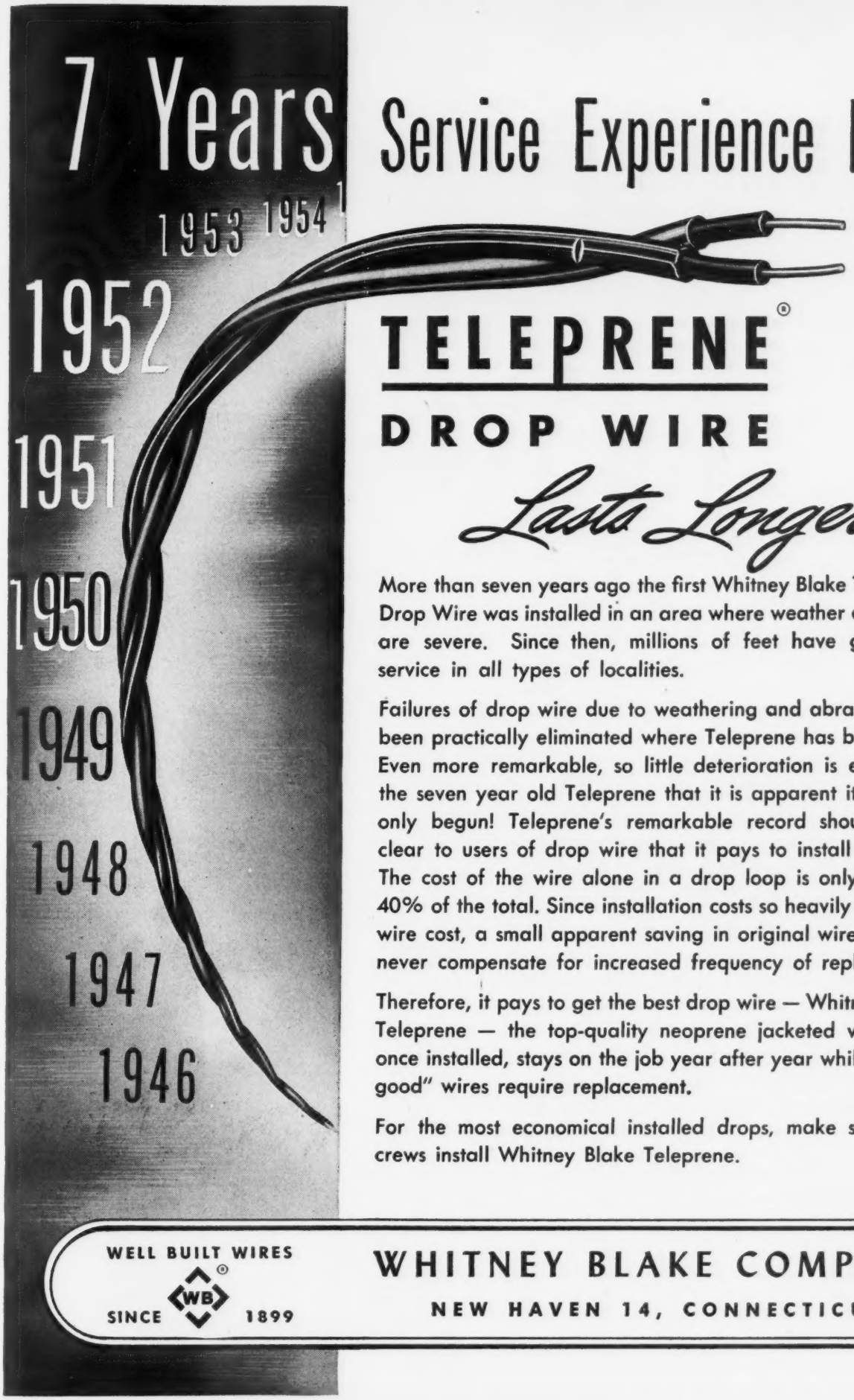
(Figures for June 1953, partly estimated)	3 Months Ended June 30, 1953	June 30, 1952
Operating Revenues	$ 69,110,000	$ 70,495,903
Operating Expenses	$ 50,790,000	$ 51,145,527
Federal Taxes on Income	7,110,000	8,587,000
Other Operating Taxes	4,590,000	4,015,435
Total Operating Expenses & Taxes	$ 62,490,000	$ 63,747,962
Net Operating Income	$ 6,620,000	$ 6,747,941
Dividend Income	105,040,000	90,021,733
Other Income	5,110,000	4,580,081
Total Income	$116,770,000	$101,349,755
Interest Deductions	13,050,000	13,284,777
Net Income	$103,720,000	$ 88,064,978
Dividends	$ 91,190,000	$ 77,472,774
Earnings per share (1)	$2.56	$2.56

(1) Based on average number of shares outstanding.

BELL SYSTEM CONSOLIDATED EARNINGS REPORT

(American Telephone & Telegraph Co. and its principal telephone subsidiaries)	3 Months Ended May 31, 1953	May 31, 1952
Operating Revenues	$1,092,597,503	$992,889,587
Operating Expenses	$ 760,361,740	$689,204,655
Federal Taxes on Income	114,481,500	104,102,042
Other Operating Taxes	85,829,175	79,139,948
Total Operating Expenses & Taxes	$ 960,672,415	$872,446,645
Net Operating Income	$ 131,925,088	$120,442,942
Other Income (a)	18,736,854	15,305,024
Total Income	$ 150,661,942	$135,747,966
Interest Deductions	28,664,717	28,548,092
Net Income	$ 121,997,225	$107,199,874
Applicable to Minority Interests	$ 3,163,764	$ 2,986,879
Applicable to A.T.&T. Co. Stock	118,833,461	104,212,995
Consolidated Earnings per share†	$2.95	$3.05

† Based on average number of shares outstanding. (a) Includes proportionate interest in net earnings of Western Electric Company and all other subsidiaries not consolidated (partly estimated).



Service Experience Proves

TELEPRENE®

DROP WIRE

Lasts Longer

More than seven years ago the first Whitney Blake Teleprene Drop Wire was installed in an area where weather conditions are severe. Since then, millions of feet have gone into service in all types of localities.

Failures of drop wire due to weathering and abrasion have been practically eliminated where Teleprene has been used. Even more remarkable, so little deterioration is evident in the seven year old Teleprene that it is apparent its life has only begun! Teleprene's remarkable record should make clear to users of drop wire that it pays to install the best. The cost of the wire alone in a drop loop is only 20% to 40% of the total. Since installation costs so heavily outweigh wire cost, a small apparent saving in original wire cost can never compensate for increased frequency of replacement.

Therefore, it pays to get the best drop wire — Whitney Blake Teleprene — the top-quality neoprene jacketed wire that, once installed, stays on the job year after year while "pretty good" wires require replacement.

For the most economical installed drops, make sure your crews install Whitney Blake Teleprene.

WELL BUILT WIRES ® SINCE WB 1899

WHITNEY BLAKE COMPANY

NEW HAVEN 14, CONNECTICUT

Outlook

Continued from page 16

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nouncing a special meeting of stockholders for Oct. 14 to vote on authorization of a new issue "in an amount not to exceed $625 million."

In addition to three issues of convertible debentures placed by AT&T since 1945, the company has borrowed $875 million in five separate issues of straight debentures.

As of June 30, the company's debt was 39 per cent of total capitalization.

Although Bell now operates 40½ million telephones, AT&T said half a million people still are waiting for telephones. About one and a quarter million customers on party lines want private lines or lines shared with fewer people.

GOVERNMENT COMPETITION

. . . you aren't hearing or reading much about it — but Administration officials are worried about complaints from businessmen about some of the Government's commercial-type operations and are urging formation of a special commission to "get the Government out of business." Washington sources say President Eisenhower isn't likely to take the initiative in establishing such a commission when it would be sure to stir up trouble with the House Government Operations Subcommittee which is right in the middle of an investigation of the same situation. The President may leave it to Congress to authorize the commission when its investigations are through.

NEW HOMES

. . . if forecasts of nation's homebuilders pan out telephone industry has big job now and in future in bringing service to new home owners.

Builders say that around 700,000 new homes will be needed each year to take care of new family formations. That perhaps another 300,000 will be needed to replace old homes beyond renovation. If the mortgage market holds up, the next few years shouldn't be too lean.

The highly active stork is the home builder's best friend. The National Association of Home Builders noted that the population of the USA has just rounded out the 160-million figure. Next month it expects the eight millionth new house to be started.

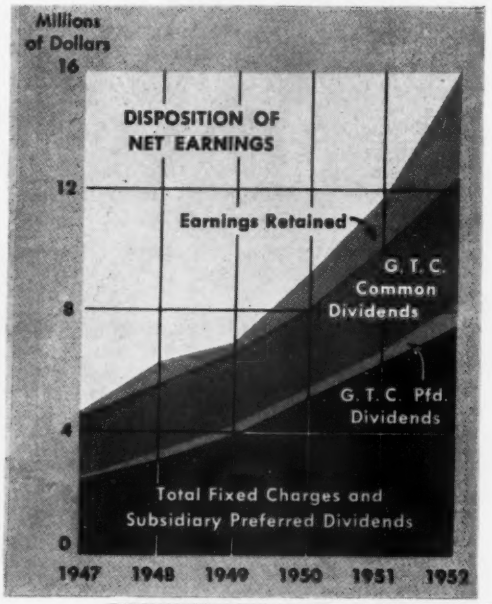
This will give the nation some 50 million housing

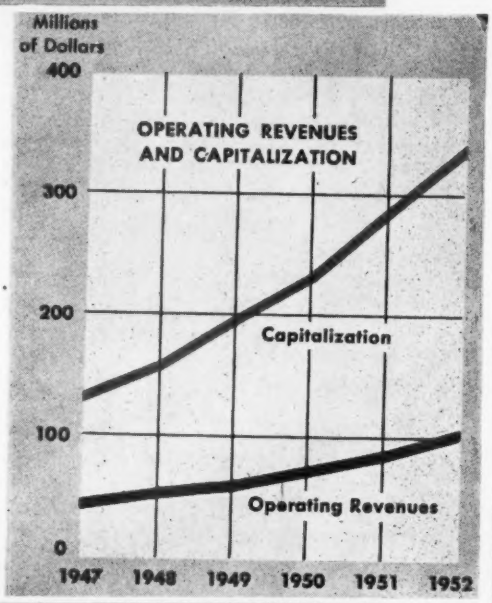
Please Turn To Page 20

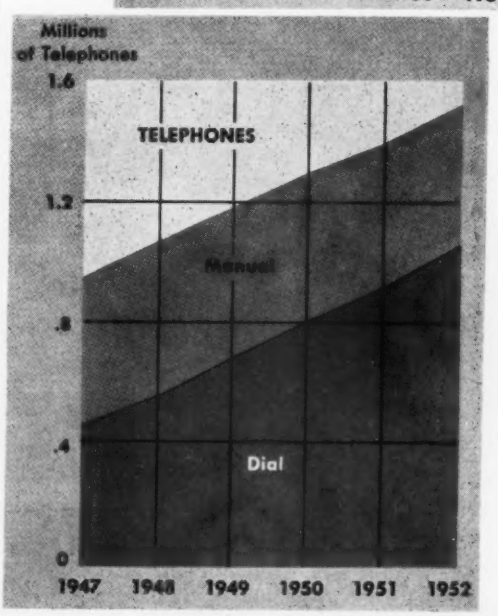
REA LOAN AUTHORIZATIONS AND ALLOCATIONS, JULY 31, 1953

LOAN AUTHORIZATIONS FISCAL YEAR	AMOUNT	AS OF END OF MONTH	NUMBER OF BORROWERS	TOTAL AMOUNT
1950	$ 25,000,000	June 1950	17	$ 3,426,500
1951	32,500,000	June 1951	113	41,255,000
1952	25,236,718	June 1952	190	82,260,718
1953	42,500,000	June 1953	219	118,144,218
1954	67,500,000	May 1953	218	114,354,218
		June 1953	219	118,144,218
TOTAL	$192,736,718	July 1953	221	120,268,218

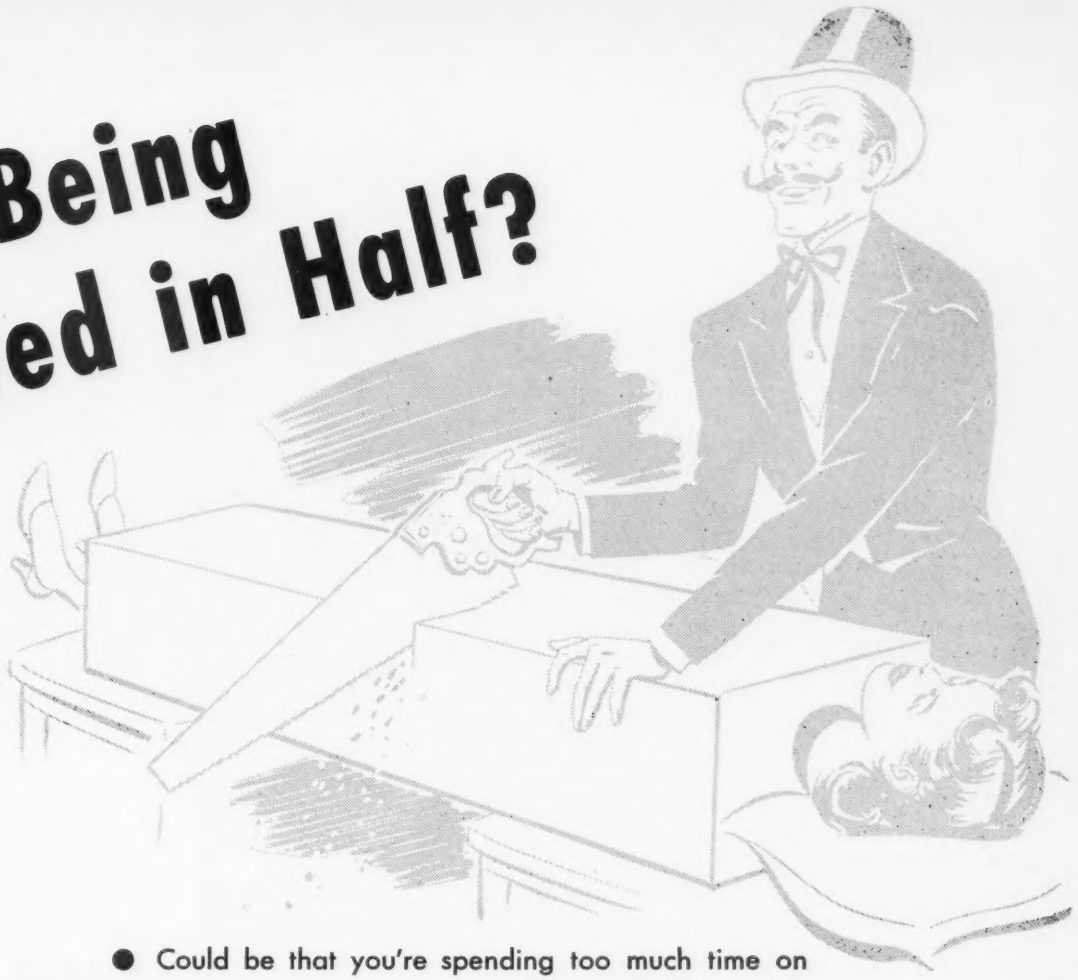
General Telephone System Trends 1947-1952







Are You Being Sawed in Half?



● Could be that you're spending too much time on directory advertising and still are not getting profitable results. It's impossible to be half-manager, half-advertising man. Estimate the hours that you spend on advertising details. Couldn't this time be spent more wisely elsewhere in your management job? Why not let a Loomis representative show the increased revenue – with public relations dividends – of the complete Loomis directory advertising service.

KNOW-HOW TO SOLVE YOUR DIRECTORY PROBLEMS

● 724 cities and towns in 22 states are served by the 287 directories that retain Loomis services.

LOOMIS
ADVERTISING COMPANY

"Where to Call"

FT. WAYNE, IND.
229 E. Berry St. . . . EAstbrook 3477

ST. LOUIS, MO.
506 Olive . . . GArfield 3700

KANSAS CITY, MO.
810 Baltimore . . . HArrison 1270

UPPER DARBY (Phila.), PA.
6908 Market St. . . . ALlegheny 4-3763

OMAHA, NEBR.
Omaha Nat'l Bank Bldg. . . . ATlantic 0188

Outlook

Concluded from Page 18

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units, or about one for each three persons. Back in 1940 the nation's 131 million persons were housed in 35 million units or almost four to a unit.

And then more than half were renters. Now more than half are owners — if you wink at the mortgages on some 10 million homes.

DETERMINING REASONABLE RATES

. . . under impact of inflation is tough problem. Recently T. Baxter Milne, retired New England Tel. & Tel. attorney, cited that the five separate opinions by the US Supreme Court in the Hope Natural Gas case clearly show there is no easy way of dealing with a determination of reasonable utility rates under the severe adverse impact of changing economic conditions. Addressing the American Bar Association's Section of Public Utility Law Aug. 24 Mr. Milne emphasized that "the united efforts of commissions, utility lawyers and management are all necessary if utilities are to have that eventual vigorous economic health so necessary if they are to be able to give the public better service at lower cost."

Mr. Milne expressed his belief that "there was and is a sound legal and economic basis for the concept of a 'fair value' rate base." He declared "it has taken two world wars, the Korean war, governmental management of the dollar, with their resultant inflationary effect on economic conditions, to bring a realization that 'value' for any purpose is a term relating to current dollars." He said that original cost as used in prescribed accounting systems — "aboriginal cost" describes it more correctly — does not present a true picture.

In discussing rate base and "fair value," Mr. Milne stated that in the present generation of rate cases since World War II "a great deal of reliance has been placed on an 'original cost' rate base but there have also been a number of guideposts to indicate that thoughtful commissioners are becoming concerned with the financial and economic results flowing from a fixed policy of using such an 'original cost' rate base."

He pointed out that the inflationary effects of the present economic conditions are being increasingly reflected in utility operations, and likewise questions of rate base, rate of return and depreciation practices are becoming increasingly important in utilities' efforts to meet customer requirements for service.

Mr. Milne reviewed last year's developments on the Charleston Separations Plan and brought out the conflict between state and federal regulation. He cited that because the FCC has adopted and is using the standard procedures in its regulation of interstate telephone rates, the investment and expenses excluded by a state commission cannot be allocated to interstate business and thus remain in a "no man's land" where the excluded expenses cannot be recovered and the excluded investment is not permitted to earn any return.

You Will Hear More About — —

OUTDOOR BOOTHS

. . . and here's why—*The public likes them.* People are keeping their eyes peeled for the new found allies of the weary traveler — outdoor telephone booths. And they're using them because their convenience and 24-hour service fill a need that can't be satisfied by any other type of telephone service.

Outdoor booths are proving invaluable in housing developments when shortages delay individual home installations. Servicemen in government installations find the booths a useful adjunct to the indoor type as they can be used in the periods when the buildings containing the indoor ones are closed.

Other popular locations include summer resort areas, bus terminals, docks, outside of stores, restaurants and community houses, on railroad platforms and in automobile service stations.

While outdoor booths represent one of the fastest growing types of telephone service today, it was not until after World War II that outdoor booths became widespread. During that period of critical shortages of telephone facilities and mushrooming defense housing projects, they provided a major means of communication.

Since then the tendency toward shorter business hours in such typical public telephone sites as drug stores, service stations and restaurants has increased their popularity.

The main feature of these stations is 24-hour-a-day convenient service, but they also offer additional revenue, a good rate of return on a reasonable investment, serve as an advertising medium and provide that "extra something" that always means so much to good public relations.

Much thoughtful consideration goes behind the installation of these telephones. To assure their full usefulness, they must be conspicuous so that they can be spotted easily night and day. Even the exact position is important. A few feet in either direction can mean a substantial difference in revenue obtained.

Parking space is another factor that needs attention in planning for installations that depend mostly upon vehicular traffic. Locations are chosen that have ample room for parking in the immediate vicinity. Where the telephones are used primarily by pedestrians, this is, of course, not essential.

Many of the booths are painted with reflective paint in vivid colors. A lighted sign draws attention to the booth and illuminates the area at night.

Booths are located in spots which discourage vandalism and robbery, but while it was first thought such incidents might be a matter of concern, experience has disproved it. The police are willing to patrol the outdoor locations as they find them valuable additions to their radio-telephone system.

If you are looking for a revenue booster, and way to give your community better telephone service, outdoor booths may be "*just what the doctor would order.*"

YES, that poor traveller who's stranded in a snowdrift down by the next pole is going to need a lot of strength to get back. Those poles are strung with Amertel 135, and they're a long way apart.

Amertel 135 is *high-strength,* permitting longer spans. In bad weather it will withstand greater ice and wind loads than ordinary BB wire. It's better in other ways, too . . . superior voice transmission qualities, lower installation cost, much-lower maintenance costs.

Why not write today for more information about Amertel 135? Just address the American Steel & Wire Division, Rockefeller Building, Cleveland 13, Ohio.

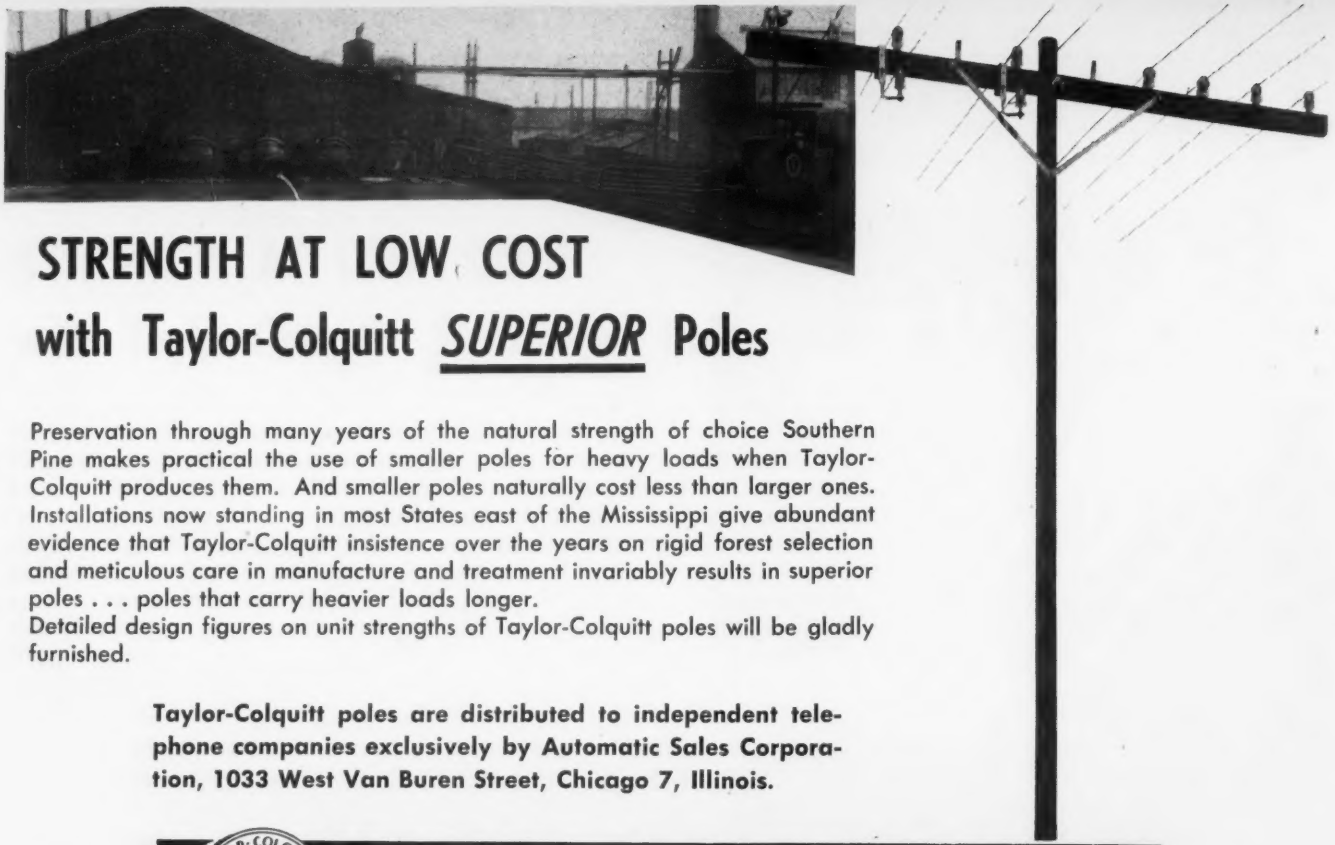
AMERICAN STEEL & WIRE DIVISION
UNITED STATES STEEL CORPORATION
GENERAL OFFICES: CLEVELAND, OHIO
COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO
PACIFIC COAST DISTRIBUTORS
TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA.
SOUTHERN DISTRIBUTORS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

LOOK FOR THIS TAG
It is your assurance of highest quality wire.

U·S·S AMERTEL

TELEPHONE & TELEGRAPH WIRE

UNITED STATES STEEL



STRENGTH AT LOW COST
with Taylor-Colquitt *SUPERIOR* Poles

Preservation through many years of the natural strength of choice Southern Pine makes practical the use of smaller poles for heavy loads when Taylor-Colquitt produces them. And smaller poles naturally cost less than larger ones. Installations now standing in most States east of the Mississippi give abundant evidence that Taylor-Colquitt insistence over the years on rigid forest selection and meticulous care in manufacture and treatment invariably results in superior poles . . . poles that carry heavier loads longer.
Detailed design figures on unit strengths of Taylor-Colquitt poles will be gladly furnished.

Taylor-Colquitt poles are distributed to independent telephone companies exclusively by Automatic Sales Corporation, 1033 West Van Buren Street, Chicago 7, Illinois.

TAYLOR-COLQUITT CO.
SPARTANBURG, SOUTH CAROLINA

PLANTS AT SPARTANBURG, SOUTH CAROLINA AND WILMINGTON, NORTH CAROLINA

STOP
IMPROPER, SUBSCRIBER-DISCONNECT HOOK-SWITCH SERVICE CALLS!

LINE AUTOMATICALLY CLEAR, WHEN SUBSCRIBER HANGS UP...

ONLY THE TELE-SYSTEMS AUTOMATIC DISCONNECT

HOOK-SWITCH HOWLER

*HAS THIS ABSOLUTELY **NEW** FEATURE!*

MODEL 300
HOOK-SWITCH HOWLER
$89.95
POSTPAID
COMPLETE — READY TO USE

- PORTABLE
- GUARANTEED
- SIMPLE TO USE
- OFTEN PAYS FOR ITSELF WITHIN FIRST MONTH
- USES STANDARD TELEPHONE DC VOLTAGES
- 10-YEAR LIFE

Order yours now!

FREE ILLUSTRATED FOLDER AVAILABLE ON REQUEST

TELE-SYSTEM HOWLERS ARE MANUFACTURED & SOLD EXCLUSIVELY BY

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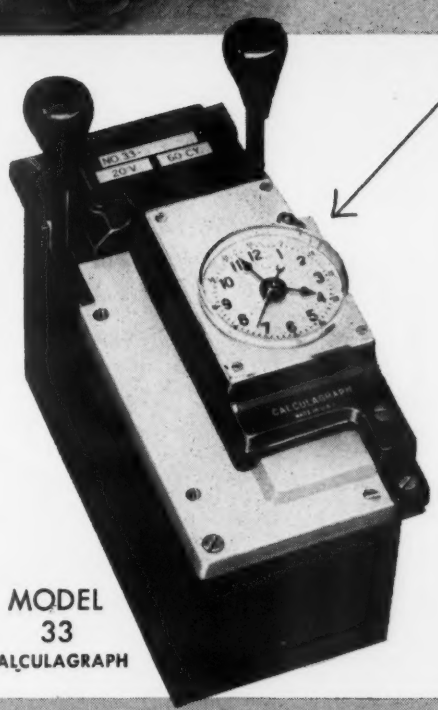
6442 SANTA MONICA BLVD.
LOS ANGELES 38, CALIF.

Here's why *modern* exchanges use

CALCULAGRAPH

Photo Courtesy of STROMBERG CARLSON CO. and THE PENINSULAR TELEPHONE CO.

–for QUICK, ACCURATE, AUTOMATIC toll time recording!



MODEL 33 CALCULAGRAPH

Busy exchanges throughout the world are using Calculagraphs because they produce quick, accurate, automatic toll time records. Accurate to-the-second, printed records eliminate switchboard detail work and assure you of collection of all revenue due on every call. CALCULAGRAPHS are precision instruments with high visibility clock dials, easy to operate — featuring smooth silent lever action.

For complete information on the various models available write to —

CALCULAGRAPH COMPANY

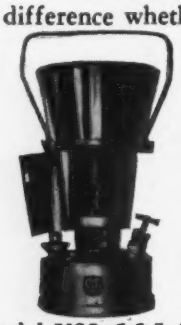
HARRISON • NEW JERSEY

THE STANDARD OF ACCURACY SINCE 1892

New leaded gas burning C&L heat tools hailed as great convenience!

model 32A

You can take C&L torch model Nos. 32A, 158A, 600A, 800 and Fire Pot X88 to any filling station and say, "fill 'er up." It makes no difference whether you use regular or Ethyl, because they are built to burn *any type* of gasoline. No extra filters are needed, no extra care required, and this added convenience is yours at no extra cost! For complete details see your C&L wholesaler, or write to Clayton & Lambert Manufacturing Company, 1701 Dixie Highway, Louisville, Kentucky.



Model X88 C&L Fire Pot Now Burns Leaded Gasoline

Fill your Torch . . .
When you fill your tank

CLAYTON & LAMBERT C&L HEAT TOOLS

RIPLEY

Light Watchman

A Beacon in the night

CONTROLLED BY AN AUTOMATIC, LIGHT-ACTIVATED ELECTRONIC EYE WHICH LIGHTS THE BOOTH AT DUSK AND TURNS IT OFF AT DAWN.

- *Fully Tested and Approved*
- *Low Maintenance Cost*
- *Income Always Certain*
- *Readily Seen From a Distance*
- *Positive Automatic Action*
- *No Motors to Freeze or Slow Down*
- *Discourages Vandalism*
- *Encourages Customer Security*
- *Easily Adjusted*
- *Heavy Construction*
- *Weighs Only 2 Pounds*

Distributed by GraybaR ELECTRIC COMPANY

- **Steel Covering**
- **Easily Installed**
- **No Dials to Set**
- **No Springs to Wind**
- **Photo tube Operated**
- **Moisture and Fungus-proofed**

ELECTRONIC **Ripley** CONTROLS

Factory and Engineering Office: Middletown, Conn. ORIGINATOR OF SUNSWITCH LIGHTING CONTROLS Telephone Middletown 6-6679

It Outperforms...

HAS BETTER VOICE TRANSMISSION THAN ANY OTHER HIGH-STRENGTH CONDUCTOR

It Outlasts...

GIVES PERMANENT PROTECTION AGAINST RUST

It's Copperweld TRADE MARK LINE WIRE

If you're looking for a non-rusting line wire that will give you greater safety for long spans, permanently better conductivity, and a lifetime of trouble-free service, Copperweld* Line Wire is your answer.

Made by molten-welding a thick copper covering to a strong steel core, Copperweld Line Wire provides better voice and high frequency transmission characteristics than any other high-strength conductor—has greater tensile strength than any wire of comparable electrical properties—assures permanent protection against corrosion. These vitally important properties make Copperweld the perfect conductor for all types of communication and signal lines, including carrier current systems where its high strength permits stringing with small sags, allowing close conductor spacings.

The tough and permanently protected steel core of Copperweld Line Wire furnishes the strength necessary for safe, economical, long-span construction. You'll save on repairs and maintenance because Copperweld has the ruggedness to withstand heavy ice and wind loads.

When you use Copperweld Line Wire, you get a dependable conductor that delivers dependable performance at the lowest annual cost. Complete information and engineering assistance are yours for the asking . . . without any obligation.

*Trade Mark

COPPERWELD STEEL COMPANY ***Glassport, Pa.***

SALES OFFICES IN PRINCIPAL CITIES

Copperweld TRADE MARK NON-RUSTING *Line Wire*

SOLD BY LEADING DISTRIBUTORS

For any telephone drop wire installation

☑ CHECK General
TELEPH
DROP

For more than half a century General Cable has developed and supplied a wide range of telephone wire and cable.

Telephone service-drops from pole to house are available in two conductor twisted pair or parallel and multiple conductor constructions.
Drop wires are manufactured with copperweld, bronze or copper conductors.
The most popular types are:

COPPERWELD CONDUCTOR NEOTEL #18 rubber-neoprene in twisted pair and parallel. Also available in reinforced types.

BRONZE CONDUCTOR NEOTEL #17 rubber-neoprene in twisted pair and parallel. Also available in reinforced types.

Special constructions to meet unusual or difficult applications are also available.
For information and service refer to our national distributor: **AUTOMATIC ELECTRIC SALES CORPORATION, Chicago, Illinois**

Other General Cable products for the telephone industry are distributed by our national distributor:

AUTOMATIC ELECTRIC SALES CORPORATION

INTERIOR TELEPHONE WIRE: Rubber insulated-braided or polyvinyl insulated and polyvinyl jacket-paired, triplex and multiple quad

DUCT WIRES: Rubber or thermoplastic insulated-braided

BRIDLE WIRES: All neoprene – twisted pair and triplex

JUMPER WIRES: Rubber-braided, twisted pair and triplex; polyvinyl insulated with tinned copper conductor

SWITCHBOARD WIRES AND CABLES

BARE WIRES

CUT-TIE WIRES

BONDING RIBBON

TYPE R or TW GROUND WIRES: #6 Solid Type R or TW, black and white for central office grounds. #14 Solid Type R or TW, black and white for sub-station grounds

TEXTILE INSULATED TERMINATING CABLES

TEXTILE INSULATED INTERPHONE CABLES

Cable
ONE
WIRE

GENERAL CABLE
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Executive Offices: 420 Lexington Avenue, New York 17, N. Y.
Sales Offices in Principal Cities of the United States

INDUSTRY NEWS BRIEFS

General Tel. Corp. Reports Income Rise

GENERAL TELEPHONE Corporation's Board of Directors last month declared the regular quarterly dividend of 55 cents per share on its Common Stock, payable Sept. 30, 1953 to shareholders of record on Sept. 9, 1953.

In addition to the Common dividend, the Board of Directors also declared the regular quarterly dividends of 55 cents on the 4.40% Preferred Stock and 59.375 cents on the 4.75% Convertible Preferred Stock, each of which will be payable on Oct. 1, 1953 to holders of record as of Sept. 15, 1953.

The consolidated net income of General Telephone Corp. and subsidiaries for the first six months of 1953 amounted to $6,482,000, as compared with $3,976,000 for the same period of 1952. Consolidated net income for the 12 months ended June 30, 1953 was $11,269,000, as compared with $7,100,000 for the 12 months ended June 30, 1953.

Wyoming Independent Receives Certificate

THE WYOMING Public Service Commission has granted a certificate of public convenience and necessity to the Pinedale Telephone & Telegraph Co.

The certificate authorizes the company to provide service to Pinedale, Cora, Daniel, Boulder and certain rural areas in Sublette county. Earle G. Crandall is owner of the firm.

Virginia Commission OK's Lee Tel. Co. Rate Hike

THE LEE TELEPHONE Co., Martinsville, Va., has been granted rate increases designed to return the company an additional $64,000 in annual revenue. The company had requested increases that would have given it $116,000 more in rate payments.

Lee Telephone serves 12,000 subscribers, 7,000 of them in Martinsville. The other areas served are Stuart, Rocky Mount, Bassett, Boone's Mill, Fieldale, Bachelors Hall and Ferrum.

A Virginia Corporation Commission spokesman said the new rates are designed to provide the firm with an annual return of slightly less than 6 per cent on its investment.

Montana Co-op To Buy Fairfield Tel. Co.

AN OPTION to purchase the Fairfield (Mont.) Telephone Co. from Mrs. Juanita Oleson, owner, has been obtained by the Three Rivers Rural Telephone Co-op.

Incorporated recently for $225,000, the Fairfield co-op is headed by Merrill C. Plummer of Power, Mont., as president, Ralph J. Parker of Fort Shaw, Mont., as vice-president, and Reece Silve of Fairfield, secretary-treasurer.

The new group took over operation of the telephone exchange Sept. 1, and has until Nov. 1, 1953 to exercise its option. Acquisition of the Fairfield properties will facilitate development of a rural telephone program throughout the area from the Marias river south to Geyser and Raynesford and from Fort Benton west to the Rocky Mountains.

In addition to the officers, incorporators are: C. O. Juelfs of Dutton; Harold Gunderson and B. L. Johnson of Power; W. James Manix of Augusta; V. Dale Stenseth of Brady; and Geoffrey Philips and Louis Pearson of Fairfield.

Cuban Telephone Co. Seeks Higher Rates

CUBAN TELEPHONE Co., which last year spent over $7.7 million on construction of telephone facilities, stated last month that unless the Cuban Government approves a request for higher rates the company will be forced to reduce construction work this year.

The company's net earnings for the year 1952, the firm said, were equivalent to only 5.3 per cent on average invested capital.

Calling these "low earnings" a "cause of great concern," the company said they are insufficient to make the securities of the company attractive investments in competition with other investment opportunities.

And, it added, the company finds itself "unable to raise the additional capital necessary to meet the

E. C. HOUSTON (left) of Atlanta, Ga., well-known chief engineer for the Southern Bell Telephone & Telegraph Co., retired from active service with the company on July 31, after a distinguished career begun 47 years ago. He was succeeded by C. EARL SCHOOLEY. Mr. Houston's first job with the company in 1906 was as a groundman in the plant department. Through the years, he rose through the ranks to positions of increasing responsibility. By 1930, he had become general plant supervisor for the nine-state territory served by the company. In 1935, he was made Georgia plant superintendent, a position he held until he was appointed assistant vice president in 1944. In 1948 he was named chief engineer.

backed-up demands for telephone service."

In the firm's annual report for last year, the Cuban company said the basic rates for local telephone service have remained the same for over 43 years while costs associated with the service have "more than doubled since the beginning of World War II."

At present, Cuban Telephone Co. has plans for a $40 million program for the expansion and development of local and toll telephone service but, the firm added, consummation of such a program requires "a major amount of new capital."

Last year, 23,468 telephones were installed in Cuba, 15,227 removed, resulting in a net gain of 8,241. Total number in Cuba at the end of 1952 amounted to 132,246, a 79 per cent gain in the seven-year postwar period.

However, unfilled orders for service totaled 33,483, the company stated, and represented an increase of 6,000 over the end of the previous year.

Also, the upward trend in the use of long-distance service continued. Over 4.7 million domestic long-distance calls were made, while more than 298,000 international calls were made, increases of 7.9 per cent and 11 per cent respectively.

The Cuban Telephone Co. and its subsidiary, Radio Corp. of Cuba reported net income in 1952 of $1,898,028 against $1,877,638 with dividends being paid at the rate of 6 per cent on preferred and common stock.

Commissioner Balks On Telephone Rate Hike

NEW MEXICO Corporation Commissioner Ingram Pickett last month refused to pay an increase in his telephone bill authorized by the State Supreme Court after the commission turned it down.

Pickett paid his July bill minus the $1.46 increase. He cited the state constitution saying only the Corporation Commission has the right to raise telephone rates.

Peninsular Tel. Co. Installs 200,000th Phone

INSTALLATION OF the 200,000th telephone on Florida's central west coast marks a station growth in the

save TIME and MONEY with a YORK-HOOVER Two-Man Crew Line Body

MODEL 5000 WD

Here is a brand new—Two Man—Line Body by York-Hoover offering a completely new conception of performance.

Built by a manufacturer with 61 years experience in the public utility field it presents many practical outstanding advantages.

Its rugged, all steel construction assures long life, and its carrying and storage capacity for tools and materials used in line work is ample.

All hole drilling and pole setting is done from the front, in full view of the operator affording greater speed and safety.

In conjunction with pole digging and derrick equipment, a hole can be drilled and a pole set in a matter of minutes.

Everything necessary to do the job is available in one package—all you do is supply a conventional chassis with a CA dimension of from 52" to 60".

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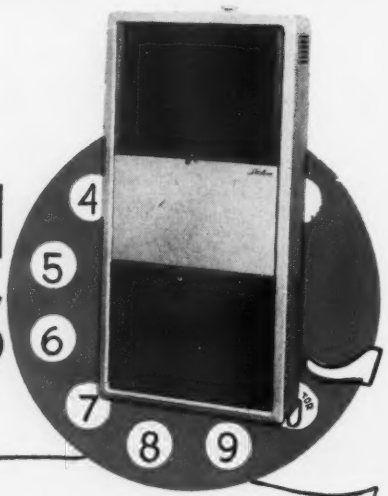

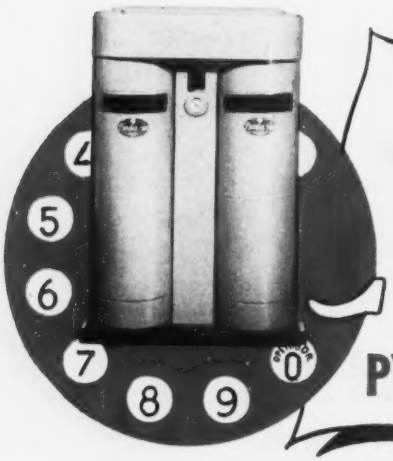

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News Briefs

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past six years equal with that of the preceding 46. Carl D. Brorein, president of the Peninsular Telephone Co. serving the six-county area, reports it this way:

It took Peninsular 46 years to install 100,000 telephones, but it added another 100,000 in less than six.

The utility firm head said that the company's 100 per cent growth in less than six years has been "extraordinary," and about double the percentage gain for the country as a whole. Since the end of World War II, the value of the Peninsular plant, buildings, equipment, and outside facilities, has grown by $30 million, from $15 million to $45 million. "This 200 percent increase in investment required to accomplish a 100 per cent growth is a result of inflation," Brorein said.

The company's 100,000th telephone was installed in the Plant City home of a young navy veteran in Sept., 1947, but Brorein explained that Peninsular workmen were too busy with their $11-million expansion program for the year and putting in telephones to determine the recipient of the new milestone station.

"It could have been anyone in the territory served by Peninsular who had a telephone installed in late July," the company president said. "Even if the company had determined the user of the 200,000th station, work schedules wouldn't have permitted an elaborate ceremony," he added.

The telephone company head traced the growth of the telephone population from the Peninsular company's first year, when it had but 300 stations, through to the beginning of World War I, when it had about 8,000. During the boom years, the company served a high of 51,000, followed by a depression low of 39,000. But telephone installations attained the previous high before Pearl Harbor and increased to 83,000 at the close of the war.

The post-war years brought heavy service demands and a backlog of installation orders the company was temporarily unable to fill because of

Please Turn To Page 32

United States Motors Corp. Announces...

MICRO POWER

Communications Standby Power That Operates *With the Main Source.* To Maintain Continuous . . .

UN-INTERRUPTED POWER

Here's NEW . . . Low-Cost . . . Automatic Standby Insurance . . . It's MICRO-POWER, developed by United States Motors Corporation especially for the Communications Industry.

IT'S AUTOMATIC . . . because it operates in conjunction with the main source of power as a line voltage regulator and stabilizer. Dropping voltage is picked-up and maintained BEFORE LOSS OF POWER TO ESSENTIAL EQUIPMENT or complete power failure.

IT'S ECONOMICAL . . . because it replaces one or more units of costly, complicated equipment.

IT'S ESSENTIAL . . . to the communications industry. There are no time consuming load "transfers". No momentary "drags" or dropping voltage. NO POWER OUTAGES, EVEN FOR PRECIOUS SECONDS.

MICRO-POWER PROVIDES COMPLETELY AUTOMATIC, UN-INTERRUPTED SERVICE FOR THE COMMUNICATIONS INDUSTRY.

3KW and 5KW Micro-Power Units available for immediate installation

Write U. S. Motors Corporation, Oshkosh, Wisconsin for complete details and specification.

SEE MICRO-POWER UNITS at the U. S. I. T. A. Convention at the Conrad Hilton Hotel, October 12, 13 and 14.

UNITED STATES MOTORS CORPORATION
LIGHT US POWER
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UNITED STATES MOTORS CORP.

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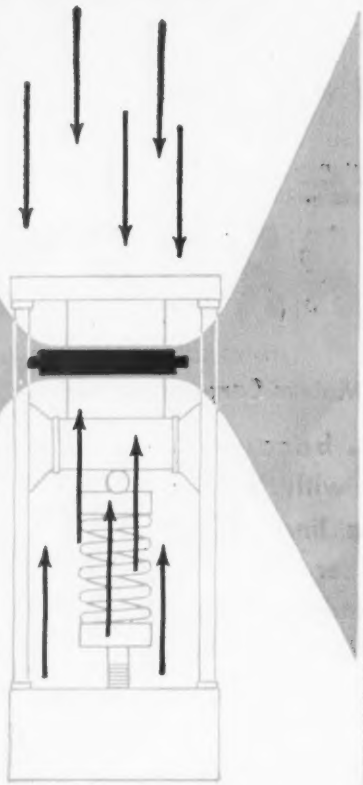
1500 pounds

MINIMUM COMPRESSION RESISTANCE OF

ALPHADUCT

DROP WIRE



Alphaduct drop wire is designed and built to be the longest lasting drop wire you've ever installed. It's tested . . . completely, thoroughly and often to make sure that every single coil is up to Alphaduct's rigid standards.

Here's how the insulation is tested to make sure it won't crush.

Short lengths of Alphaduct are placed between the steel plates of a compression testing machine. These plates are then forced together at uniform speed until the insulation crushes. Alphaduct parallel drop wire has to withstand a minimum load of 1500 pounds before it breaks. Each conductor of Alphaduct twisted pair will withstand a 1000 pound pressure.

You don't have to worry about a little rough handling breaking down this kind of tested insulation. Try Alphaduct drop wire. It's dated, so you can see for yourself the extra wear it provides.

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THE LINDSAY TELEPHONE SUPPLY CO., CLEVELAND, OHIO

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the shortage of facilities. As equipment began to arrive, the telephone total grew to 100,000, then to 150,000 — in July, 1950 — and finally this year to the fifth of a million mark.

Indiana Bell Upheld by Court in Rate Struggle

THE RECENT Indiana Public Service Commission (PSC) order cutting Indiana Bell Telephone Co. rates and directing the company to make an $8 million refund to its customers was declared null and void Aug. 14 by Judge Lloyd D. Claycombe in Marion circuit court.

Before issuing his ruling, the judge refused to grant a commission petition asking him to disqualify himself and authorize selection of another judge.

The rate order issued by the commission provided for a reduction in Indiana Bell's annual income by about $1,700,000 a year. In addition, it stipulated that refunds be made to about 600,000 customers of the difference between present rates and those of 1951. Such refunds would have approximated $8 million.

In issuing his ruling, Judge Claycombe said that the commission had failed to make a proper finding as to the fair value of Indiana Bell's properties and that it did not determine a fair rate of return due the utility.

The rate case was taken to court by the company in June, 1951, after the PSC had issued an order fixing rates. At that time Judge Claycombe issued a temporary injunction and approved a rate schedule giving the company around $7.2 million a year. In January, 1952, a permanent injunction was issued. But in June this year, the state Supreme Court rejected that ruling and ordered the case returned to the PSC.

Venezuela To Buy Caracas Telephone Co.

THE VENEZUELAN Government and the Caracas Telephone Co. last month reached a tentative agreement providing for the transfer of the firm's stock to the country, according to a report received by the Ven-

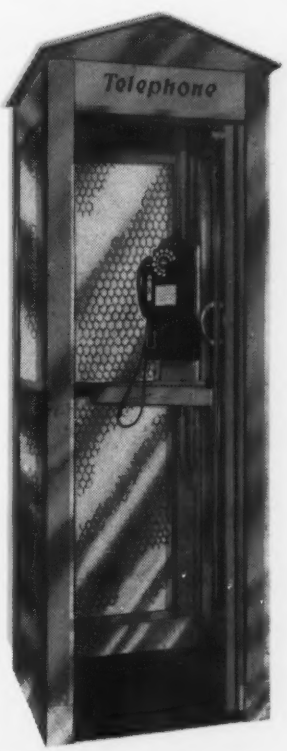
Please Turn To Page 38

Dime and dime again

Sherron Outdoor Booths

Invite paystation patronage

The opportunities for paystation yield from Sherron outdoor telephone booths are as big as all outdoors. Highways, motels, roadside eateries, gas stations—all these and many more are likely locations for Sherron booths that will be patronized day in, day out, all day and all year. The clean, attractive steel and wireglass construction of Sherron booths invites use without abuse. Sherron booths won't rot or decay. They are fireproof and termite-proof. Maintenance is at a minimum.



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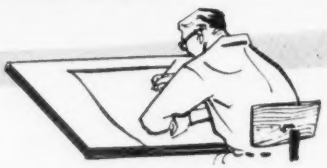
HOW AUTOMATIC ELECTRIC'S

follow-thru engineering

cuts carrier costs



1

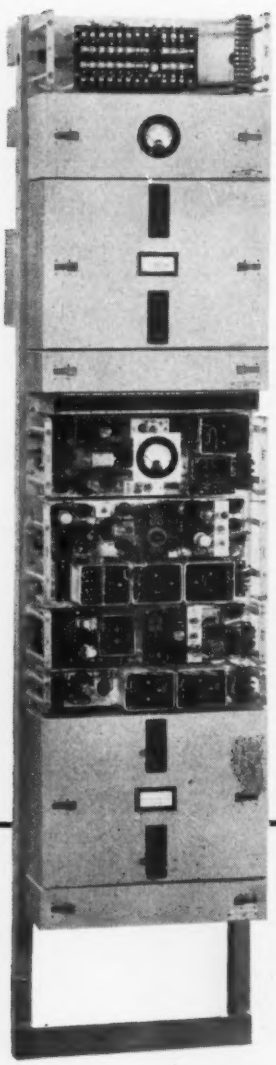
Preliminary engineering follows-thru!

The day you start thinking about carrier is a good day to call on Automatic Electric! We'll work with your engineers, right on the job, and give you a complete *over-all* carrier plan. You save from the economies that result from long-range planning.

2

Project-Analysis engineering follows-thru!

We'll recommend correct Lenkurt Carrier equipment for each specific part of your over-all plan and show you *why* it is recommended. If existing equipment must be changed, we'll suggest your most economical moves. And when your carrier is installed, we'll give your communication engineer assistance.



Type 33A
1 to 3 channel "stackable" system for short or medium length circuits.

3 ***Continuing engineering follows-thru!***

Automatic Electric engineering continues for the life of Lenkurt equipment. When carrier re-arrangement or expansion is required—even after ten or twenty years—the same concrete help is on call to adapt your Lenkurt equipment to changing needs.

Lenkurt flexibility pays dividends

From coast to coast, leading railroads have multiplied communications circuits at minimum cost with Lenkurt Carrier. This standardized, flexible, quality equipment is available in a complete range of systems to meet any of your carrier requirements. A letter or call will bring complete facts or an Automatic Electric carrier engineer to your desk.

Manufactured For

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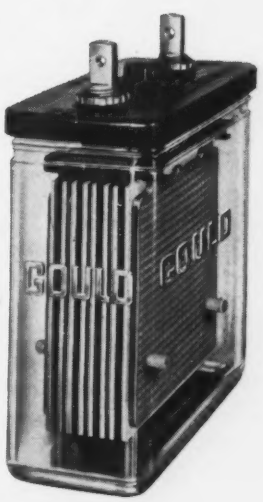

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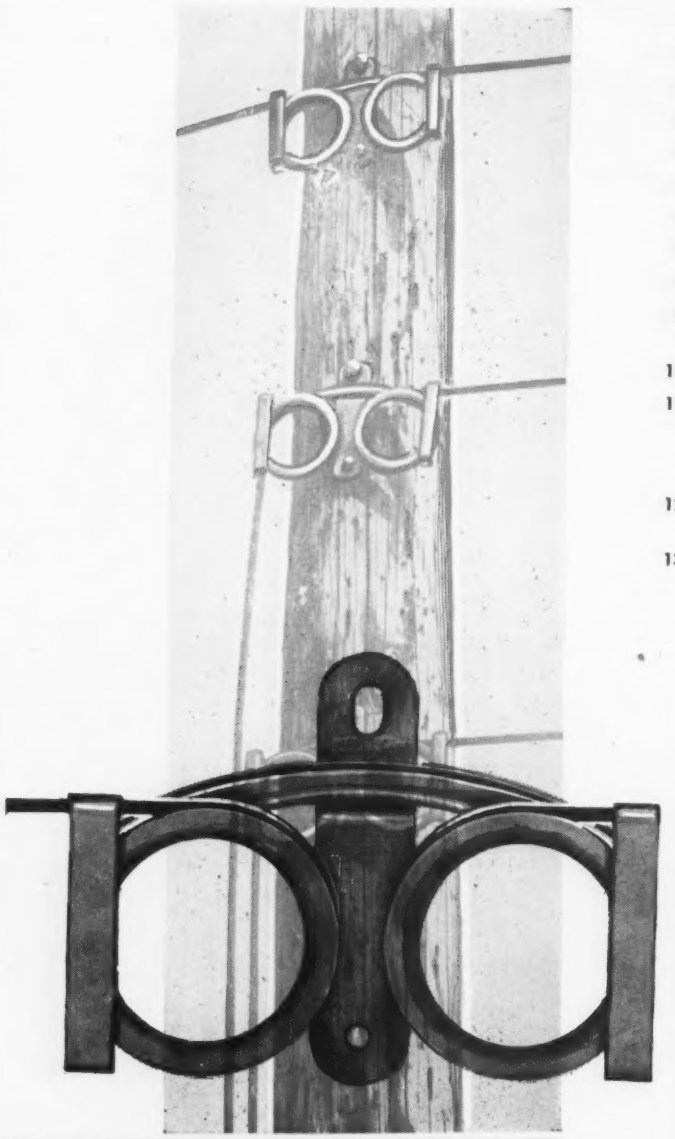
The CHANNELL TERMINAL and CABLE SUPPORT was designed especially for ANKOSEAL CABLE, however, the TERMINAL can be used on any type plastic or lead sheath cable. THE ANSONIA WIRE & CABLE CO. ANSONIA, CONN. is the sole distributor of the CHANNELL CABLE SUPPORTS.

With the CHANNELL TERMINAL T-SUPPORT and SELF-SUPPORTING ANKOSEAL CABLE, you can't beat this combination for a modern and economical cable plant.



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1. **The CHANNELL TERMINAL was the first TERMINAL for plastic cables.**
2. **It is covered by TWO PATENTS and OTHERS PENDING.**
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4. **They have been in service over 5 years.**
5. **It requires no splicing, wiping, testing and can be cut in by one man.**
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7. **Can be used on strand, pole, house and self-supporting cables.**
8. **Can be removed at anytime, if required.**
9. **Can be used as a splice housing for junction box for loading and branch splices.**
10. **It is made of a corrosive resistant aluminum alloy.**
11. **It is a solid aluminum casting, not a split casting, (over 90% of the terminals used today, are cut in on new cables and it is not necessary that the terminal be split, it would only increase cost & maintenance.)**
12. **The face plates are interchangeable so the terminal can be enlarged without removing from plant.**
13. **It will improve telephone service and reduce your cost of cable work about 60%.**

OUR MOTTO:
IF IT WON'T SAVE YOU 50%,
WE WON'T MAKE IT.

#C-3 CHANNELL TERMINAL, SINGLE AND T-SUPPORTS WITH ANKOSEAL SELF-SUPPORTING CABLE (Pat. 24318755-2434102, others pending)

26-Ga.	24-Ga.	22-Ga.	19-Ga.
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26-Pr.	26-Pr.	26-Pr.	26-Pr.
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ALL PRICES F.O.B. EL MONTE, CALIF.

6-Pr. C-3 TERMINAL COMPLETE	$15.50
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BLANK FOR SPLICE HOUSING	$14.50

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From actual experience we know that cable construction is higher than it should be. We now offer five items that will reduce your cost 50% or more.

CHANNELL CABLE SUPPORTS.
CHANNELL CABLE TERMINALS.
CHANNELL SPLICERS TESTBOARDS.
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if you use

ANSONIA Ankoseal®

The threat of the elements to uninterrupted telephone service is not what it used to be — not since the advent of Ankoseal.

Polyethylene on the conductors and polyvinyl chloride jacketing make Ankoseal more resistant to moisture, sunlight, oils, alkalis and earth acids.

These qualities not only protect continuity of service but also reduce maintenance and replacement costs.

Write or phone for detailed technical data.

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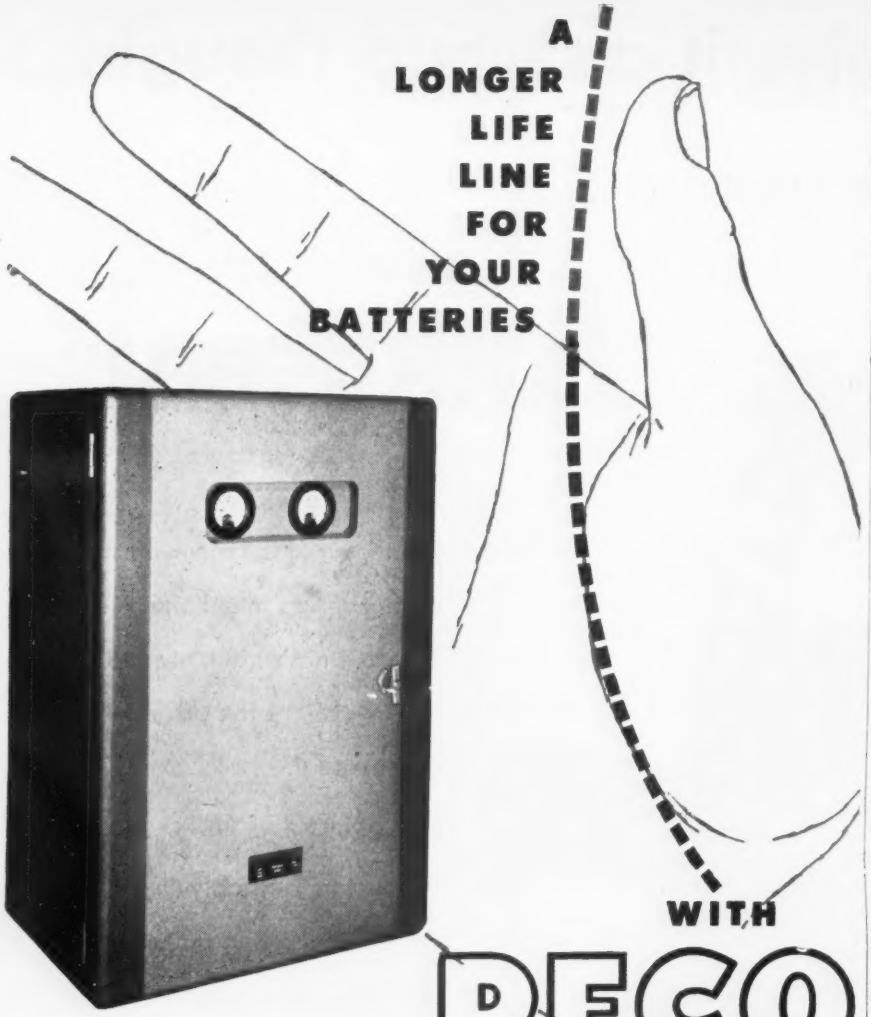

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To provide extreme accuracy of electronic control and the exceptional reliability demanded by this type of service, Power Equipment engineers designed this PEC626 type Automatic Battery Charger by starting with the rugged components of a manual charger, then added a magnetic system for coarse voltage control and a simplified electronic system for fine voltage control.

As an illustration of the accuracy of the PECO charger, this example can be used: the DC output is sufficient to maintain 60 lead acid battery cells at 129 volts; it will also furnish power to switchboard loads within the rating of the charger, and at all times the output voltage is automatically regulated to within ± 0.5 per cent, for AC line voltage fluctuations of ± 5 volts on a 230 volt circuit.

Exceptional reliability is shown by the fact that if the electronic control section should be disconnected, the magnetic control section will still automatically hold the output voltage to within ± 3 per cent of nominal voltage.

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Battery Chargers ☆ Battery Eliminators ☆ D.C. Power Supply Units ☆ Regulated Exciters ☆ and other Special Communications Equipment

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News Briefs

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ezuelan Information Office from the former Minister of Communications, Col. Oscar Mazzei.

Value of the stock has not been determined, the office stated. It will be estimated on a 6-per cent return on capital investment, taking as a basis the company's average earnings for the last six years.

Payments will be made over a 5-year period and are expected to total about $8 million.

The Information Office said that the Venezuelan Government recently signed a contract for the installation of 85,000 telephones in Caracas and other cities "after many months of fruitless efforts" to have the old company, a subsidiary of Telephone Properties Ltd., London, England, improve and expand telephone service in Caracas to meet the growing needs of the city.

L. R. Leach Heads New Illinois Assoc. Committee

L. R. LEACH of Mount Carmel, Ill., has been named chairman of a new Small Company Assistance Committee of the Illinois Telephone Association to serve southern Illinois, it was announced last month.

The purpose of the group, Leach said, "is to assist all small telephone companies in Illinois with the many problems facing a rapidly expanding industry." Assistance offered includes such items as accounting, plant maintenance and construction, traffic operations, engineering, business administration and directory advertising.

Other members of the committee are R. F. Benson, Rosiclare; D. A. Stephenson, Woodlawn; Louis E. Massey, Jerseyville, and George Edland, Alton.

General Tel. of Mich. Announces Appointments

GENERAL TELEPHONE CO. of Michigan has appointed Stanley W. Ratajack to the position of general plant superintendent, succeeding F. W. Hamper, who has accepted the position of personnel director for General Telephone Co. of the Southwest.

Mr. Ratajack is a veteran of 29 years' experience in telephone com-

Please Turn To Page 101

GraybaR TELEPHONE NEWS

MR. GILLILAND'S NEW CONTRAPTION!

In 1885, the Gilliland "Harness" represented the ultimate in operator headsets. Aptly named, it weighed over 6½ pounds — thus limiting the selection of switchboard operators to only the most sturdy and robust applicants.

The Gilliland **Harness**, however, pointed up the importance of operator comfort. As a result, headsets today are available via Graybar weighing as little as 6¼ oz. In addition, Graybar has helped many independent telephone companies plan for building-wide comfort of personnel through proper lighting and ventilation.

MAGNETO SERVICE CAN BE MODERN, TOO!

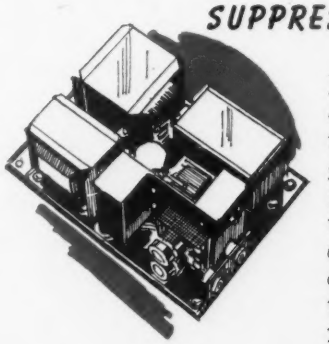
Sleek, handsomely-styled magneto telephone desk sets keep pace with modern living. Ideal for long, heavily-loaded rural lines, they offer your most distant subscribers ultra-clear reception and transmission, as well as reliable ringing. They're easily converted at any time for common battery operation. You can get both magneto and common battery instruments from your local Graybar office.

At the other end of the line, Graybar offers you a complete selection of magneto switchboards . . . common battery switchboards . . . combination common battery and magneto units.

THIS MAN CAN HELP YOU PLAN CENTRAL STATION AND POLE-LINE CONSTRUCTION

With more than 18 years of practical telephone experience behind him, the average Graybar Telephone Specialist is well-qualified to help you with your problems — feel free to call him for technical help at any time.

SUPPRESSES RADIO INTERFERENCE



Lorain SUB-CYCLE ringing machines feature built-in suppressors to eliminate radio interference . . . give long-term, trouble-free service. In like manner, Graybar-distributed battery chargers, battery eliminators, power plants and accessories are carefully engineered to provide maximum efficiency and minimum maintenance.

260-229

GRAYBAR ELECTRIC CO., INC.
Executive Offices:
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IN OVER 100 PRINCIPAL CITIES

Call Graybar first for...

So . . . YOU'VE DECIDED upon CABLE to supplant or augment your Open-Wire plant . . .or have you?

Would you like to know—

- **the relative merits of Cable plant versus—Open Wire plant?**
- **how to design a Cable plant including fundamental feed plan, terminal count, cable relief methods, etc., etc.?**
- **the types and sizes of cable, sizes of poles, spaces for cable spans?**
- **how to construct aerial cable, what tools and materials are necessary, how to place messenger strand, how to lash, etc.?**
- **how to design an underground cable system, about conduit systems, manhole construction and service boxes?**
- **all about cable splicing, removing sheath, boiling out cable cores, using dessicants, etc.?**
- **how to locate cable troubles?**
- **how to maintain a cable plant, protection methods, repairing and inspection?**

Mr. Manager—

If you are not fully familiar with Cable Plant Construction and Maintenance you owe it to yourself and to your position as director of the destinies of your company to take advantage of the opportunity being presented to you herewith.

If your cable crew is not complete or if it is behind the times in its methods . . or . . if you wish to train some of your other men to become proficient in cable construction and maintenance while they are working on their present jobs as many companies are now doing . . you'll be vitally interested in TELEPHONE ENGINEER & MANAGEMENT'S new training course "CABLE PLANT CONSTRUCTION." Read full details on next page.

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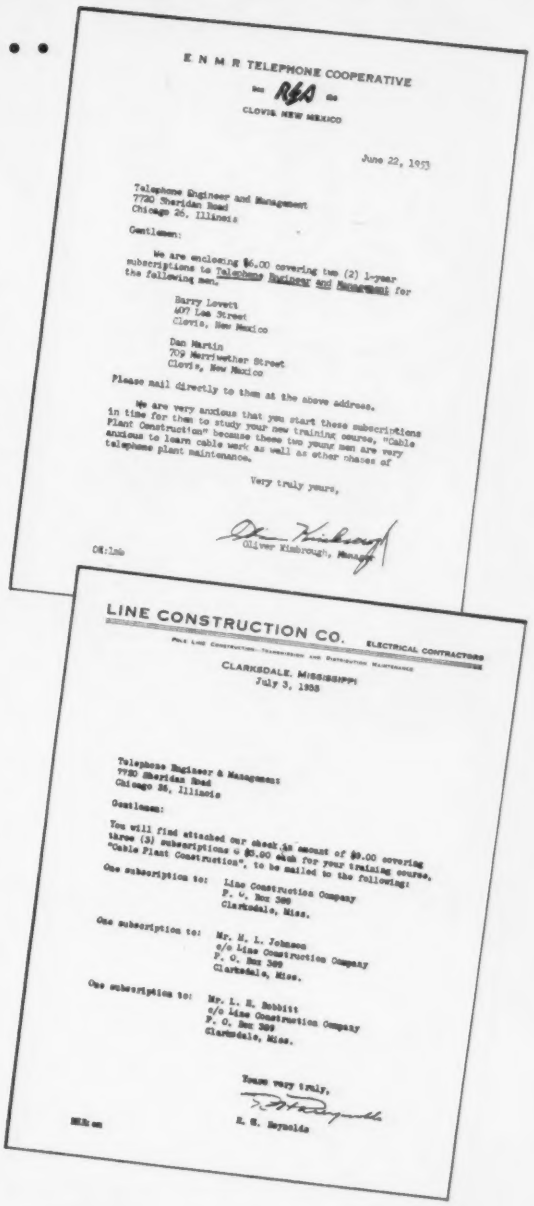

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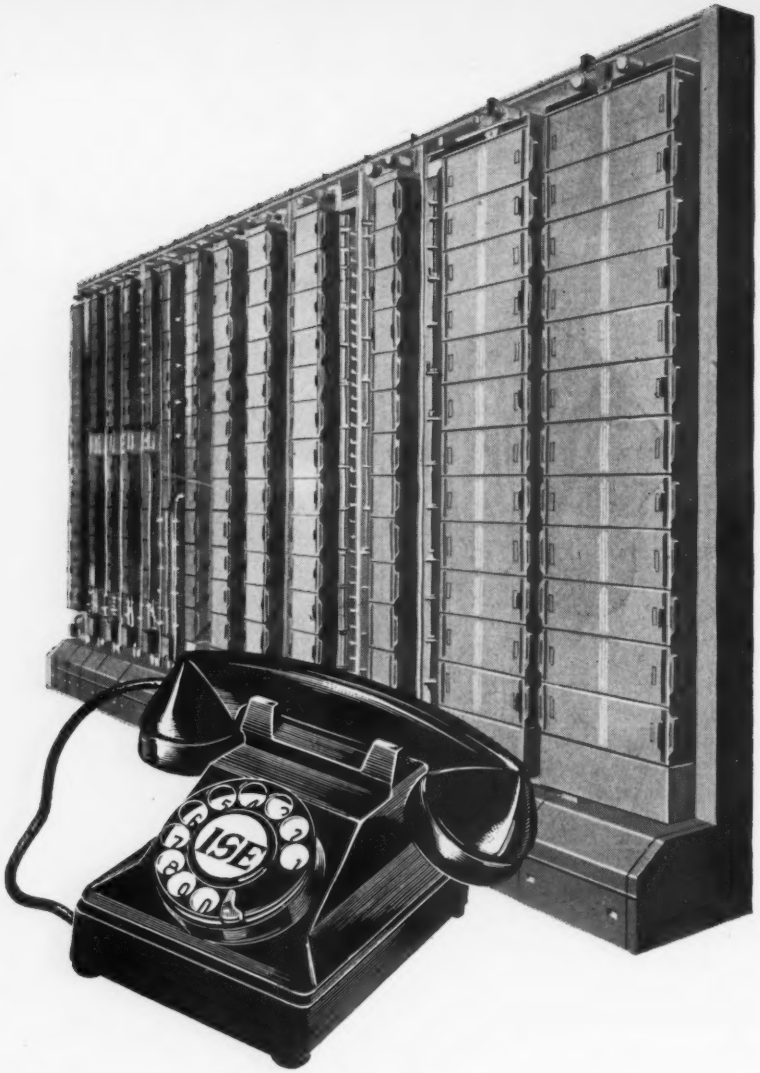

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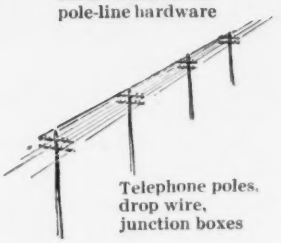

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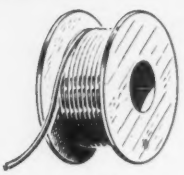

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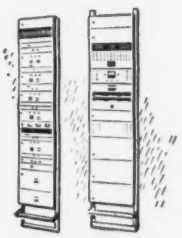

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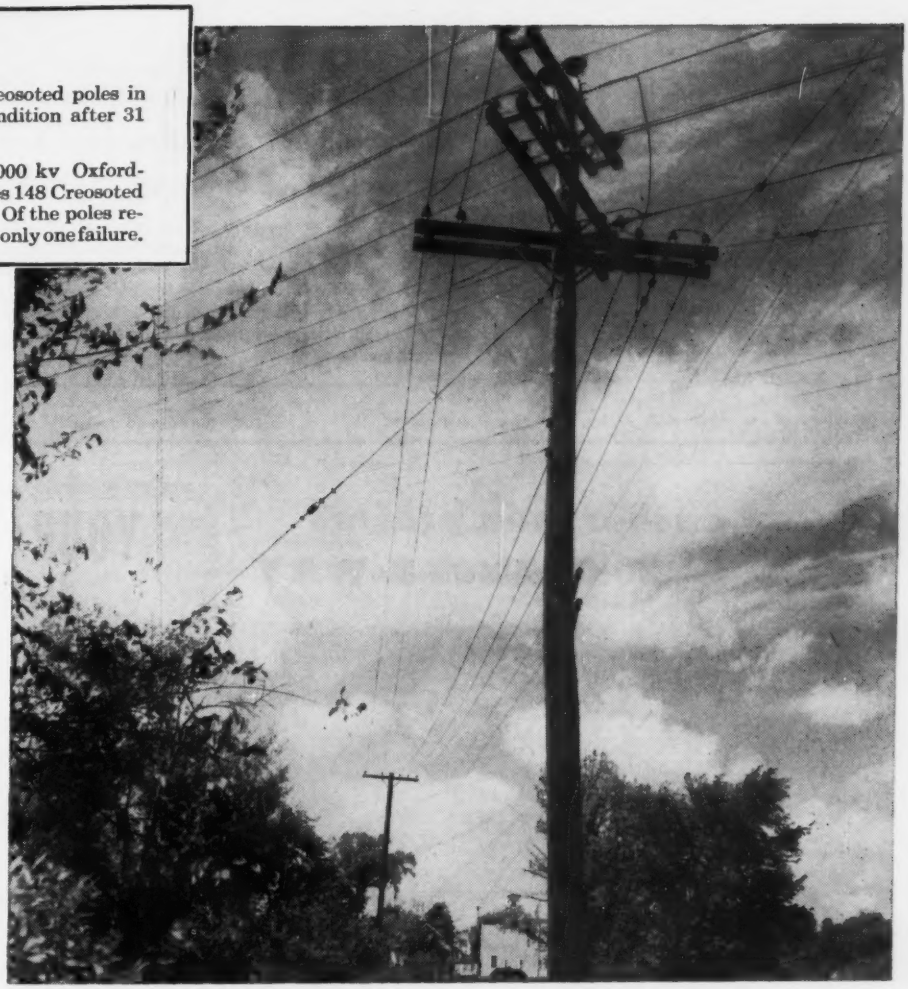
A MICHIGAN ELECTRIC COMPANY REPORTS: 425 CREOSOTED POLES INSTALLED IN 1922 . . . ONLY ONE REMOVED FOR DECAY

THIS CLOSE-UP of one of the Creosoted poles in the line shows its excellent condition after 31 years of service.

DETROIT EDISON COMPANY'S 24,000 kv Oxford-Romeo transmission line includes 148 Creosoted poles that were installed in 1922. Of the poles removed, decay was responsible for only one failure.



In 1922, Detroit Edison Company installed a 14-mile 24,000 kv transmission line between Oxford and Romeo, Mich., using 425 poles treated with Creosote. Thirty-one years later, 148 of the original poles are still in the line.

But of the 277 removed, *only one was taken out because of decay.* The others were removed because of road widening, residential and industrial construction, automobile accidents and storms. And many of the poles removed were reused in other locations.

In the Detroit Edison System—which has over 600,000 poles—nearly three-fourths are treated with Creosote. Their Supervising Engineer of Inspection and Standards points out, "Creosote is an excellent preservative with an enviable service record. It offers absolute reliability, great lasting power and adequate cleanliness for pole use."

The Creosoted poles are southern pine and cedar, and company officials say southern pine poles wouldn't last five years without Creosote, but they'll last 30 to 60 years with it.

Service records like this are important to you because they prove the time-tested effectiveness of Creosote as a wood preservative. Its toxicity and permanence have made it first choice among users of treated wood.

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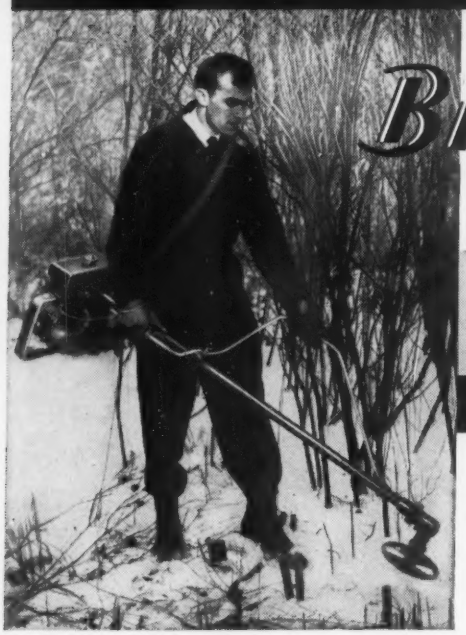

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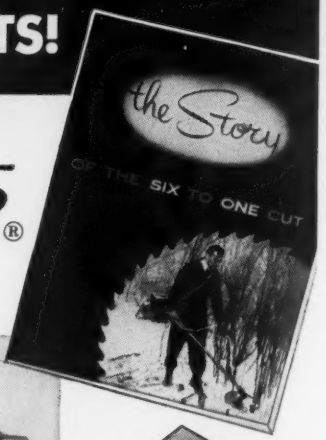

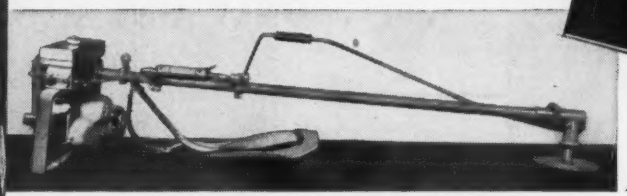

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Telephones play an important role in the lives of all of us. The story of this everyday instrument is a fascinating one as told in this book. Everyone will find worthwhile this clear, well-demonstrated presentation of the function of telephones. The Schneiders begin with a simple, nondial phone and manual switchboard and move step by step to a full explanation of the highly complex boards which handle large city, modern telephoning.

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Records provide a library of Talk-Out messages that, once recorded, are available for use at any time.

Records provide a medium for professionally recorded announcements.

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SEPTEMBER, 1953 VOL. 57 NO. 9

EDITORIAL

THE COURT OF LAST RESORT

WE AMERICANS LOOK upon the Supreme Court of the United States as our court of last resort. And so it is, on matters of law and constitutionality.

But, upon the great multitude of other things affecting human society and life in a democracy such as ours, there is a court more powerful than any court of law.

That is the Court of Public Opinion.

Every day we see this power of public opinion at work in the affairs of our national and state governments, and in politics and other public affairs. But, being busy with so many other things, we may at times overlook the fact that this power is also at work in our own business, in ways affecting not only our revenues and earnings, but also determining how much trouble, or lack of it, we have in the management of that business.

In the telephone business our efforts to deal with this power of public opinion are known as "Public Relations."

One great difficulty with this proposition of Public Relations is the fact that we cannot see, visually and instantly, just how much good we are accomplishing by a given course of action or a given amount of expenditure. One trouble with public relations is that they are intangible.

Yet the proposition of establishing and maintaining good relations with the public it serves is a job that can be as important to a telephone company as that of maintaining its plant. And the job is just as permanent as the work of maintaining the plant.

Some pertinent words on the subject of public relations were spoken in an address made recently by Mr. Chas. F. Mason of California, veteran Independent telephone executive. Mr. Mason said in part:

> *"We cannot practice good relations two or three days a week and forget about it the rest of the week. And it is not a responsibility which the busy management can kiss off by delegating it to some hired expert or company vice president . . . ."*

Those are words born of long and successful experience. Also, from experience, Mr. Mason gave this sound and practical advice:

> *". . . . . it is not always wise to stand too much on strictly legal rights. Sometimes a few hundred dollars worth of plant improvement will clear up a service problem quicker and more completely than thousands spent on defensive proceedings before the commission or elsewhere."*

To this Mr. Mason added a comment which, it seems to us, goes to the heart of this public relations problem. He said:

> *". . . . . it is possible to obtain favorable decision in a case before the commission and still lose it with the public. And when we lose a case with public opinion, it is likely to stick for a long time. One can appeal from a commission order, but there is no appeal from the verdict of the public . . ."*

There we have it! From the verdict of the public there is no appeal — the public is the court of last resort.

The company with bad public relations is usually in some kind of trouble with the public it serves — over service, over rates, or over something else just as troublesome. And fighting the public is like fighting a newspaper; the newspaper always has the last word.

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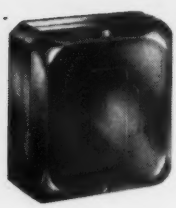
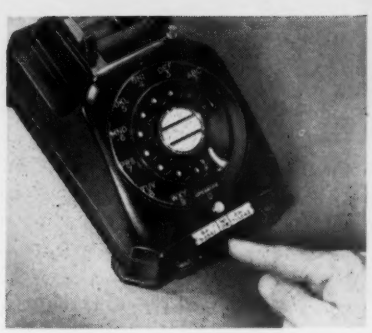
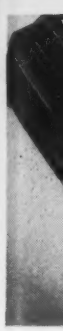
New! No. 1573 provides m



Newly designed bell box, smaller in size, contains new high-impedance ringer.



Key to the left, for Line 1; to the right for Line 2. Two different signals, instantly recognizable, (one a "hi" gong, the other "lo") identify the line being called.



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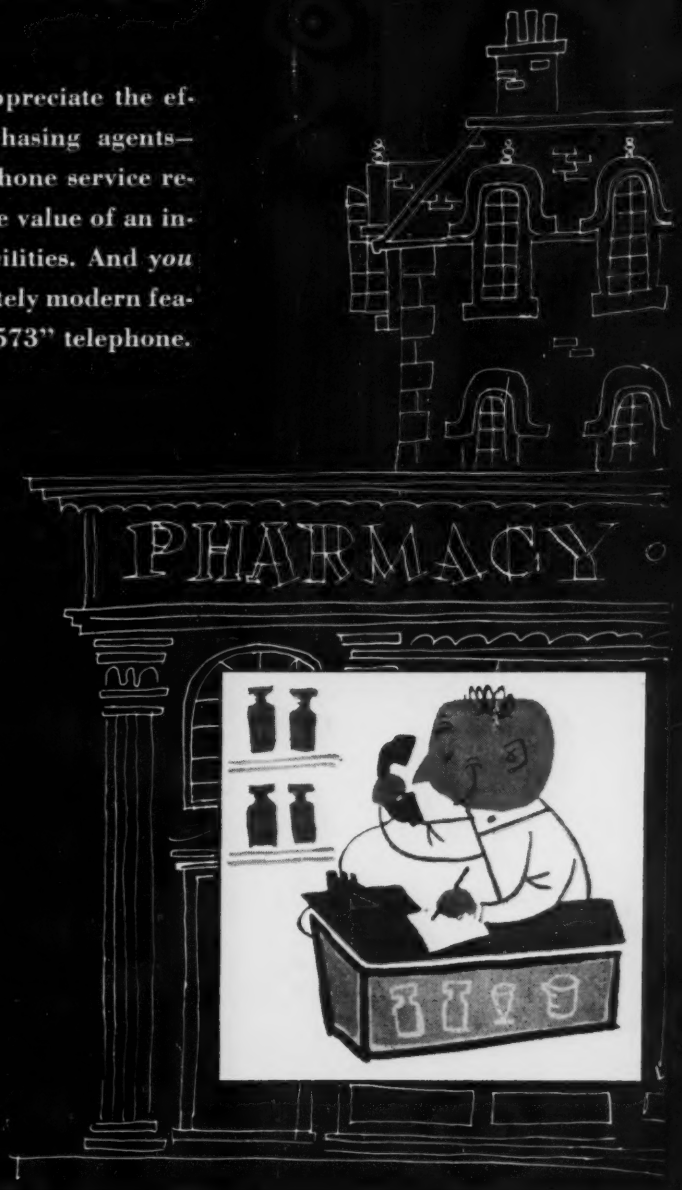
- Access to two lines in a single instrument—no external key box.
- Provision for holding a call without auxiliary relay equipment.
- Simpler to operate; it eliminates the confusion of which control key to operate.
- Provides third line for local (intercom) service to other telephones or connection to local PBX . . . not arranged for holding.
- Positive mechanical restoring of hold button when handset is replaced to prevent holding calls unintentionally.
- Internal mechanism is very simple, easy to maintain, and accessible without removing other parts.
- Separate and distinct "operator recall" or "redial" button prevents loss of calls when holding a call on the other line.
- Key controls, like the other components, designed for 20-year life.
- Truly a member of the Stromberg-Carlson family, permitting interchangeability of parts.
- Newly designed bell box, smaller in size, contains new high-impedance ringer.

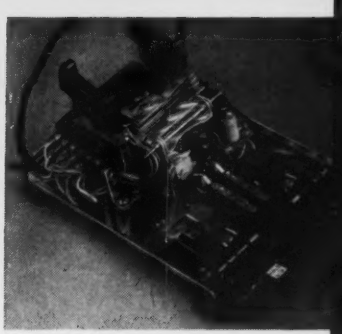
Write today for the "1573 Engineering Bulletin." It's your first move towards increased revenue.



Depressing either button *holds* the call and restores the line-selecting key to center. The other line or the 3rd line (see next picture) may then be used coincidentally.

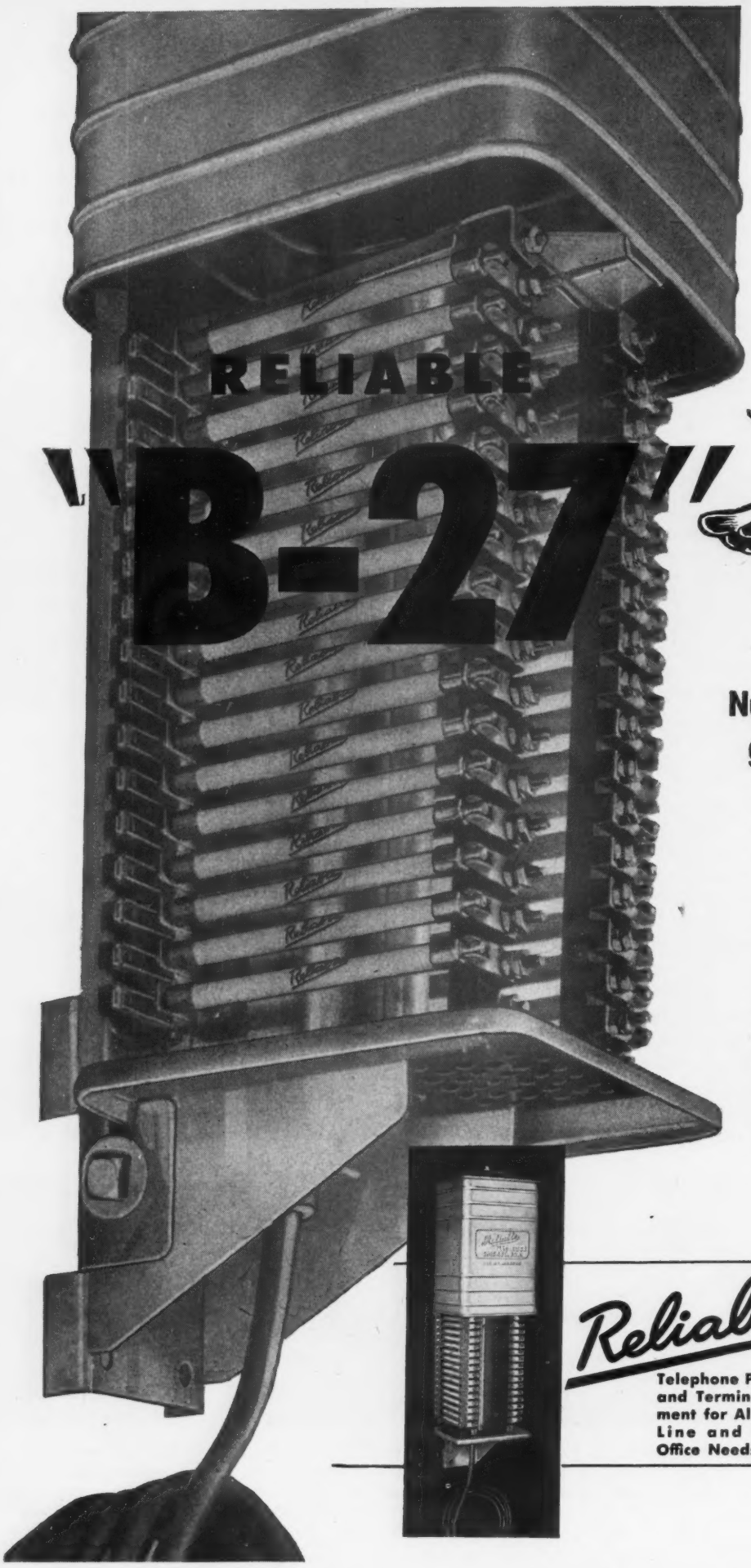
A third line is built into the instrument. It may be used as a local line, a trunk, a connection to the subscriber's own PBX.

A "recall" button is available to signal the PBX operator or "redial" a call in a dial office without affecting the "hold" condition of the first line.



Interior view of the Stromber Carlson "1573" two-line te phone, showing complete acc sibility of the whole interior.

Atlanta 3, Chicago 6, Kansas City 8, San Francisco 3. In Canada: Stromberg-Carlson Co. Ltd., Toronto



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IT'S THE KEY TO—
TROUBLE-FREE
CABLE
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Number B-27 Cable Terminal gives you these features

- Static discharges are dissipated with no time lag by the self-cleaning P495 Sawtooth Discharge Blocks. Blocks are retained by individual springs — cannot be accidentally loosened or crossed.
- All connections are made from the front without removing fuses or reaching around cable terminal.
- Corrosion resistant aluminum alloys are used for cover, bracket and base assembly to assure long service life.
- Mounting of the B-27 is extremely simple. The mounting bracket is attached without gaining the pole — installation is a one-man operation.

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WINTERTIME MAINTENANCE

By JOHN S. REED

The most economical maintenance procedure is that which prevents failure of the equipment while it is in use.

Now is the time to prepare your outside plant for winter.

IN ANY SIZE or type of business, maintenance is an important function in the operation of the organization. Equipment and machinery must be properly taken care of or their efficiency will be seriously impaired. The most economical maintenance procedure is that which prevents failure of the equipment while it is in use. Thus, instead of waiting until some part breaks down before making repairs, the equipment and machinery are inspected and remedial measures are applied before actual breakdown can occur. An example of such care is the lubricating of machines in a factory at regular intervals and the overhauling of this apparatus at specific times with the purpose of searching out and replacing defective or worn parts.

Experienced plant men recognize such a procedure as preventive maintenance. They know that the telephone plant, no matter how ingeniously designed or how well constructed must be maintained in good working condition if it is to operate

efficiently for many years and furnish good service to subscribers.

Inside telephone plant, such as central office, telephone building, and subscriber station equipment are subject to ordinary wear and require relatively simple care. On the other hand, outside telephone plant can be damaged or worn out in a number of ways to a much greater extent. Exposure to weather elements and fungi infection cause progressive deterioration of poles, wires and fixtures. Nearby construction work or traffic accidents on roads may damage poles or wires. Trees and brush grow up into the wires and cause circuit noise or may break and fall onto the wires resulting in a service interruption. Street lighting or power wires may come in contact with telephone lines and burn them down or damage station protectors. Lightning is a very common source of damage on farm lines. *Figures* 1 *to* 4 illustrate these conditions.

Clearing of Incipient Faults by Exchange Workers

WITH THE outside plant spread out over a large area, it is not practicable to keep the plant under continuous observation as in the case of inside plant. The solution is a program of overall inspection and repair of the outside plant at certain regular intervals, coupled with observation for and correction of incipient trouble cases by exchange workers in the course of their regular duties.

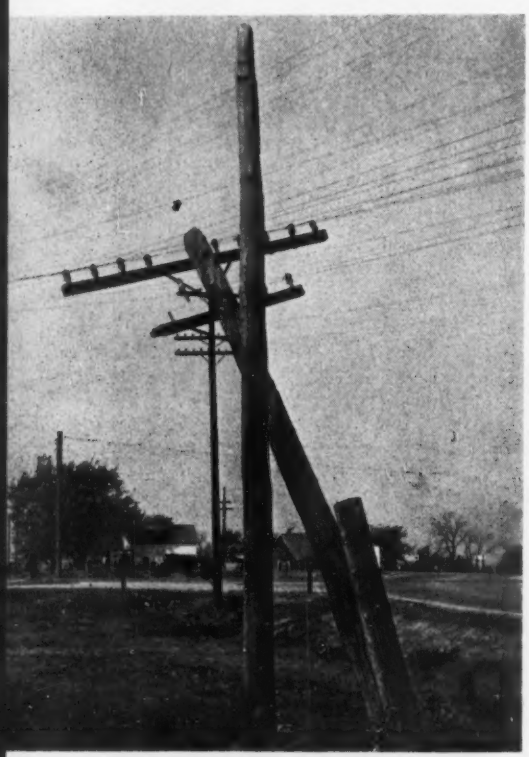


FIGURE ONE — The pole and fixtures were left too long to the ravages of weather and wood rot before replacement was started

The regular inspection and repair program is ordinarily carried out every two years and covers the entire exchange. The fall and early winter months are generally a good time to conduct the inspection and make needed repairs to bring the plant into shape for the rigors of winter.

To supplement the two-year inspection program, exchange workers should be instructed to keep their eyes open for plant defects on their usual assignments and correct incipient faults before they cause service interruptions. Thus, a man assigned to telephone installations will observe the condition of the drops entering the houses adjoining the one where he is installing the telephone. He may note, for example, that the drop next door is beginning to rub on a growing tree branch. After notifying the subscriber on this property and getting his permission, he takes his tree trimmer and cuts off the interferring branch. A combination-man on a rural trouble assignment may detect a broken glass insulator on a farm bracket lead as he drives by. He stops his car, gets out a line insulator, and climbs the pole to replace the defective insulator. These are merely minor jobs, in fact, they seem so trifling that it is sometimes difficult to get the men to do them without fail. Yet a large number of little faults corrected over a period of time will gradually bring the plant up to good shape and reduce trouble complaints by subscribers to a surprisingly low figure. The use of a standard form (*Figure* 5) on which to report trouble that cannot be cleared immediately will prevent failure to report the trouble for handling by another man.

Inspection and repair procedures for open wire lines, cable, and drop wires are discussed in this article. A program for tree and brush clearance as part of the winter maintenance plan is included in this discussion.

In the case of open-wire leads, considerable driving is needed to cover a lot of territory in checking the condition of the lines. Whether to conduct an inspection and jot down the faults as detected for correction by exchange workers or a crew, or to make repairs as the faults are located, depends on the size of the exchange and the preference of the manager or supervisor. For larger exchanges, it is usually more economical to have a trained inspector (often the manager himself) and a helper check the condition of the lines. The helper drives the car or truck while the inspector observes the lines and writes down the work to be done to correct unsatisfactory conditions found.

The inspector will need a rural rec-

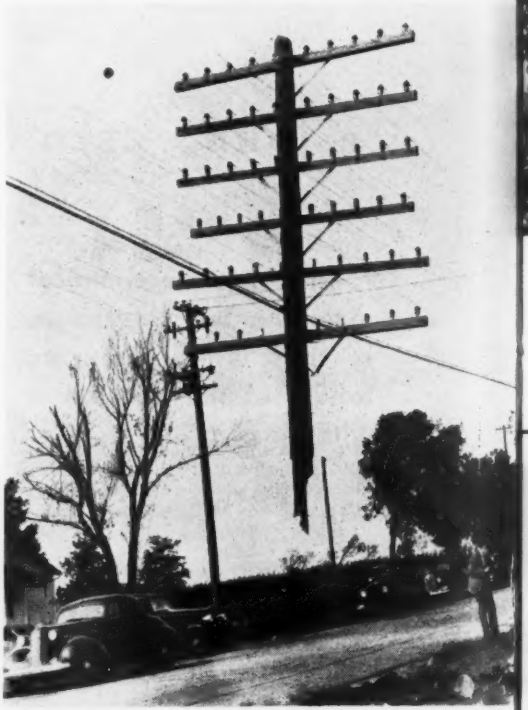


FIGURE TWO — This is the result of a traffic accident.

ord map of the exchange area so he can locate the lines and plan the routes over which he is to drive. Although a standard form could be used for recording items of plant requiring replacement or repair, it is usually more satisfactory to provide a standard writing pad of 8½″ x 11″ or 14″ size. The writing pad enables specific instructions to be written down for the work to be done. This facilitates planning the work for assignment to repairmen to handle along with their regular work. Such a procedure has been found to be very economical of time and effort.

Economy in line maintenance is just as important as in line construction. For this reason, the inspector should exercise good judgment in de-

FIGURE THREE — Contact of line wires with trees and brush is a frequent source of line noise.

GENERAL MAINTENANCE WORK ORDER
OR
DEFECTIVE LINE REPORT

To R. Connors 6-25 1953

Exchange Lincoln

Tel. No. 4-8306 Name F.A. Thelander

M. F. Pr. Ter. No. Pr.

Address mile 1007 Spur B

Reason Drop Please road 13 feet

Description of Work

Place 30 ft. #9 pole, West side, set 25 ft. #9 pole, East side. Replace drop around defective cut out and splice in drop wire at pole.

Should Be Completed Very soon

When Completed Return To Ray Clinton

Completed By Date

Remarks:

FIGURE FIVE — Use of a maintenance work order form for correcting case of inadequate drop wire clearance.

FIGURE FOUR — A direct lightning stroke shattered this pole

FIGURE SEVEN — A good job of pole stubbing. The stub is the same size as the line pole.

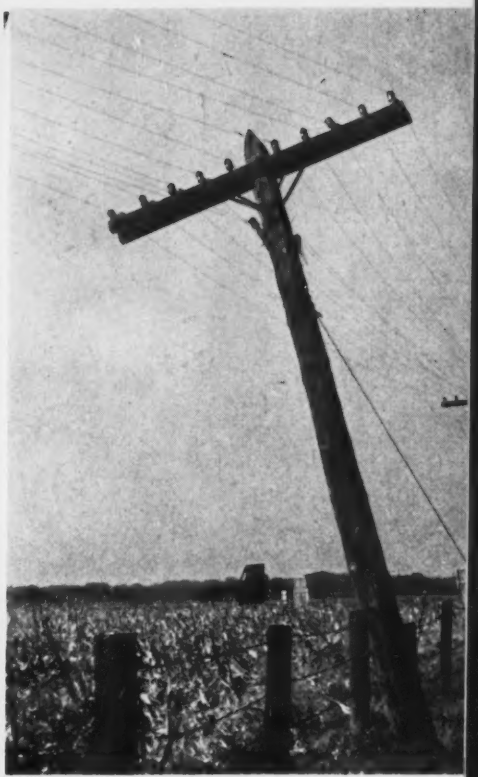


FIGURE SIX — A slipped guy caused excessive leaning of the corner pole.

FIGURE EIGHT — The stub is too small for the size of pole reinforced.

FIGURE NINE — The reverse side of a pole and stub showing how the through bolts of the stub reinforcement bands are attached to the band.

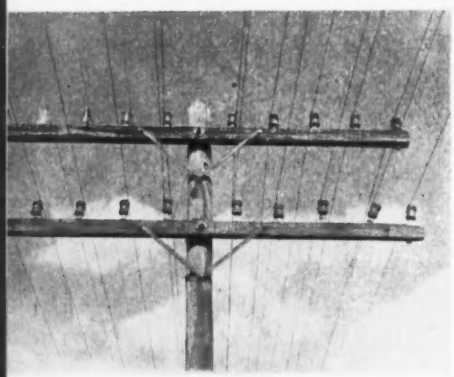


FIGURE TEN — These 10-pin arms need immediate replacement to prevent possibility of a line short or cross as the result of the insulator pins near the right end pulling out.

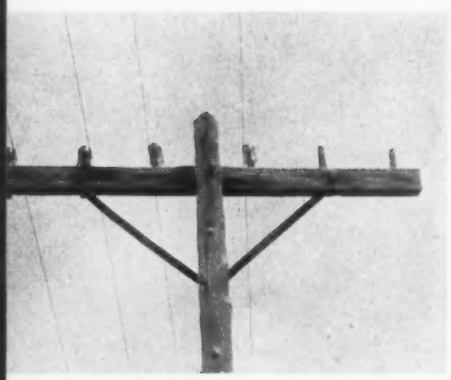


FIGURE ELEVEN — It is false economy to use salvaged 10-pin crossarms for 6-pin arms by cutting off the decayed ends. The decay was not stopped and has now progressed to the point where the outer left pair of pins have sunk into the arm.

ciding whether items of plant should be replaced. Just because certain fixtures like knob and brackets for attaching drop wires to poles are not now in use is no reason for replacing them with drive hook attachments. Also there may be some types of construction that are not standard, but are doing the job satisfactorily. As long as these obsolete or nonstandard items are in sound condition and are not hazardous to plant employees or the public, they should be left in place.

Although much of the open wire lines can be observed as the inspector and his helper drive by the lines, it is advisable to stop the car and make closer inspection whenever necessary, as in the case of the following open wire locations:

- Open wire junctions to cable (inspection of protector blocks and fuses, and bridle wire connections)
- Buffer protection installation (checking protector blocks and bridle wire connections)
- Buck arm corners (to check bridle wire jumpers)
- Spur line connections to main lines
- Poles at wire crossings over railroads and rivers
- Dead ends in crossarm leads
- Any other place where an observation from the ground indicates that a pole should be climbed for closer examination of the wires or fixtures.

A special examination procedure is required for the poles, only after they have been in service for ten or fifteen years following construction or rebuilding of the line, depending on the kind of timber from which the poles are cut and whether they are full length or butt treated.

Details of Biennial Inspection

THE INSPECTOR should give careful attention to the important line conditions listed below. Methods of correcting unsatisfactory conditions are also suggested.

PROPER WIRE CLEARANCES FROM THE GROUND: — In the case of wire crossings over roads it is desirable to use measuring rods when an accurate check seems necessary. Making sure there is more than the minimum required clearance may prevent a claim for damage in case someone runs into the wires with a high load on his truck.

When wire clearances from the ground are insufficient, this may be due to stretching of the wires under ice loads in which case the slack will have to be taken out of the wires. In other cases, a driveway may have been opened into the field from the road, requiring setting another pole in order to raise the wires higher, or one of the poles may have been moved to a different location, causing an excessively long span. This would call for setting another pole in the middle of the span, or replacing the short pole with a taller one, in order to obtain the desired clearance.

PROPER CLEARANCE FROM POWER WIRES AT CROSSINGS: — No attempt should be made to measure clearance at these points, but rather, if the distance between power wires and telephone wires appears to be too small, the power company should be asked to check this condition. Relocating telephone wire attachments, reducing the spacing between crossarms or brackets may increase the clearance. If these methods are not practicable, the power company should be requested to adjust the clearance by moving their own wires or attachments.

ADEQUATE CLEARANCE FROM TREES AND BRUSH: — Generally there should be sufficient clearance between line wires and trees or brush to avoid troublesome contact for a period of about two years or more. The amount of clearance will depend on the growth rate of the species of trees or brush along the right of way and whether the lines are magneto or dial.

In megneto exchanges, foliage coming in direct contact with the line conductors may be tolerated as long as an actual short or a cross does not result, and there is not too much noise induction from power lines paralleling the telephone line. In dial exchanges, however, the slightest contact of the foliage with the bare wires will cause leakage of the central office battery current to the ground or between the wires, resulting in equipment trouble and line noise. For most tree species in locations where growth is normal, the clearance generally should be four feet. For fast growing tree species such as willow, boxelder, and elm, and for trees and brush in localities of heavy rainfall, more clearance should be provided.

Overhanging dead branches and

dead trees leaning in close proximity to the line should be removed to prevent the possibility of the branches dropping on the wires or the trees falling over on the line.

FOREIGN POLE ATTACHMENTS: — These should be checked against plant records to make sure that they are authorized. Such attachments, if authorized, should be properly made to avoid trouble from inadequate clearance, insufficient guying, and the like.

LEANING OR BROKEN POLES: — The poles should not lean to a considerable extent. Besides being unsightly, they cause unbalanced wire loads, straining the wires and insulator ties, and are unsafe to climb and work on. Generally, the poles should not lean more than 1 foot in 10 feet of pole height in leads of six wires or less, or more than 1 foot in 15 feet where the pole carries more than six wires. Where the poles are raked out of line to allow clearance for the line wires from trees and brush, a little more lean may be allowed. However, an excessive rake for clearance purposes is undesirable when other methods can be employed.

If a guyed corner pole is found to lean considerably in the direction of the pull of the line wires, the cause may be inadequate anchoring or a slipped guy (*Figure* 6). If the lean is greater than 3 feet at the top, or it is evident that the leaning is a continuing process, the pole should be straightened. This will usually require untying the line wires and splicing in short pieces of wires. Inadequate anchors and guys should be replaced with heavier anchors and guys. A leaning dead end pole will require similar treatment.

A leaning pole may be found to have been broken, usually the result of decay or an automobile accident, in which the pole was struck by a vehicle. Whether to replace the pole or to stub it depends mainly on its condition. A pole may be stubbed if (1) it is sound above the ground level and the pole fixtures are in good condition; (2) when the right size or kind of pole is not immediately available; or, (3) when it is necessary to raise the pole for satisfactory wire clearance and it is not economical to replace the pole with a taller one. *Figures* 7 *to* 9 illustrate methods of stubbing poles, using patent stubbing bands.

Coming Coventions

Arkansas Telephone Association, Majestic Hotel, Hot Springs, Sept. 21 and 22.

Rocky Mountain Telephone Association, Newhouse Hotel, Salt Lake City, Utah, Sept. 24 and 25.

United States Independent Telephone Association, National Convention, Conrad Hilton Hotel, Chicago, Oct. 12, 13 and 14.

North Carolina Telephone Association, Carolina Hotel, Pinehurst, Oct. 22 and 23.

South Carolina Telephone Association, Clemson House, Clemson, Oct. 26 and 27.

Virginia-West Virginia Independent Telephone Associations, Hotel Roanoke, Roanoke, Oct. 29 and 30.

Alabama-Mississippi Independent Telephone Association, Thomas Jefferson Hotel, Birmingham, Ala., Nov. 9 and 10.

Florida Telephone Association, Sheraton Plaza Hotel, Daytona Beach, Nov. 12 and 13.

Georgia Telephone Association, Henry Grady Hotel, Atlanta, Nov. 16 and 17.

Oklahoma Telephone Association, Biltmore Hotel, Oklahoma City, Nov. 19 and 20.

If it is found that poles in straight sections of the line tend to lean to one side or the other, ground bracing may have to be resorted to. In light leads, a trench may be dug on the leaning side of the pole, and a creosoted log placed close against the pole to keep it from leaning back again.

POLE GUYS: — Slack or broken guys cause excessive wire sag. They also result in excessive stress on the pole from the wire load and it may break under storm or ice loads. Guys in this condition will require pulling up with block and tackle or chain hoists.

Broken, damaged or badly corroded guys should be replaced with new galvanized strand. The guys should be of adequate strength for supporting the wire load, particularly where long spans of high strength wire are involved. It is desireable to use 2200-lb. galvanized strand rather than solid No. 6 galvanized steel wire in light guying, as guy strand has a longer life than the solid wire.

Unprotected guys have been the cause of damage claims when located where people or livestock might run into them, as in farm yards or pastures. In some locations where appearance is a factor, it is a good idea to place manufactured wood or metal guy guards. In other locations it is satisfactory to use a discarded crossarm (with the pins sawed off) or the split half of a small diameter pole about ten feet long, or even a straight, trimmed tree limb. This is lashed to the under side of the guy with wire.

In some instances, it has been found that guys in farm yards have been the cause of strangulation of valuable cattle due to their neck chains catching on the guy clamps. A suggested remedy is to install an 8 foot length of 4 inch fiber conduit split along its length to admit the guy strand. The end of the conduit around the anchor end of the guy is buried in the ground to fix the conduit in place. The upper end and the middle of the guard are wrapped with friction tape rather than using construction wire, to avoid the wire ties catching in the neck chains.

POLE FIXTURES: — A decayed crossarm can be detected by the settling of the insulator on the arm, due to sinking of the pin shoulder into the softened wood caused by water accumulating inside the pin holes and facilitating decay. Arms in this condition should be replaced.

Splitting of crossarms at the ends can be stopped by applying a metal strap around the split end, or closing the split with a carriage bolt through the ends. These end splits cause end insulators to fall out and drop the wire at inside corners, or to short the line conductors at outside corners in the lead, as indicated in *Figure* 10.

Ten-pin arms with split ends salvaged in line rebuilding operations should not be reused for 6-pin arms by cutting off the ends. It has been found that such salvaged crossarms have a short life and will soon have to be replaced (*Figures* 11 *and* 13).

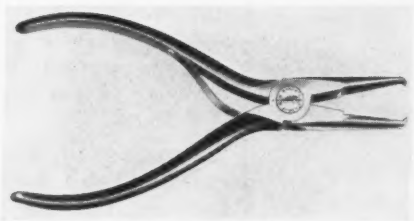
Decayed or damaged wood pole brackets should be replaced. Good brackets that are loose, as in *Figure* 12, should be renailed. In some cases, the brackets will have to be relocated a little to one side or above or below the original location for more secure fastening to the pole.

(*To Be Continued*)

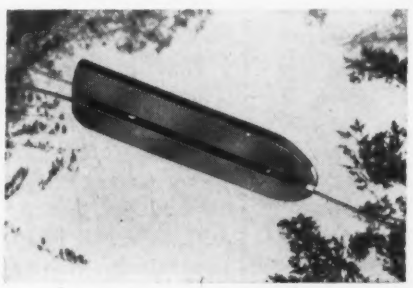
New Ideas For Faster Job Performance

The process of invention and development weld many new devices and apparatus into new methods that speed up and improve job performance methods.

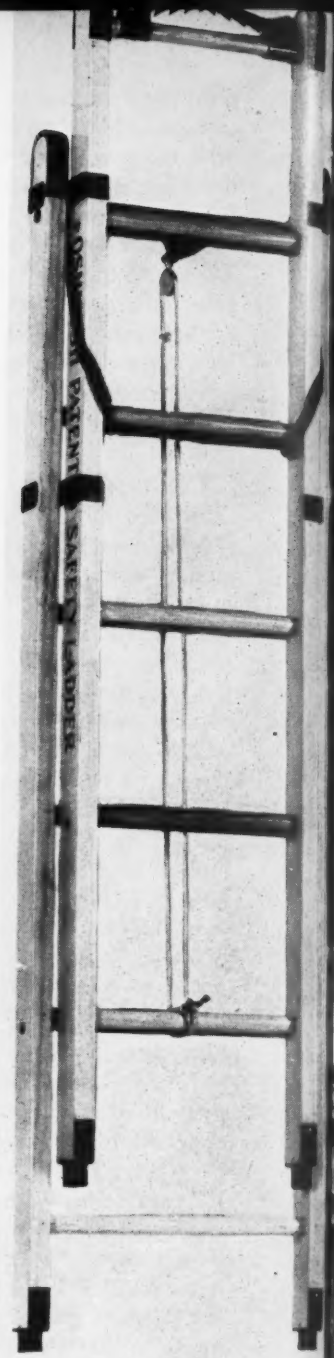
By MYRLE SHAFER



CUTTING PLIERS: — Transverse end cutting plier makes it possible to reach into confined places and make a clean cut.

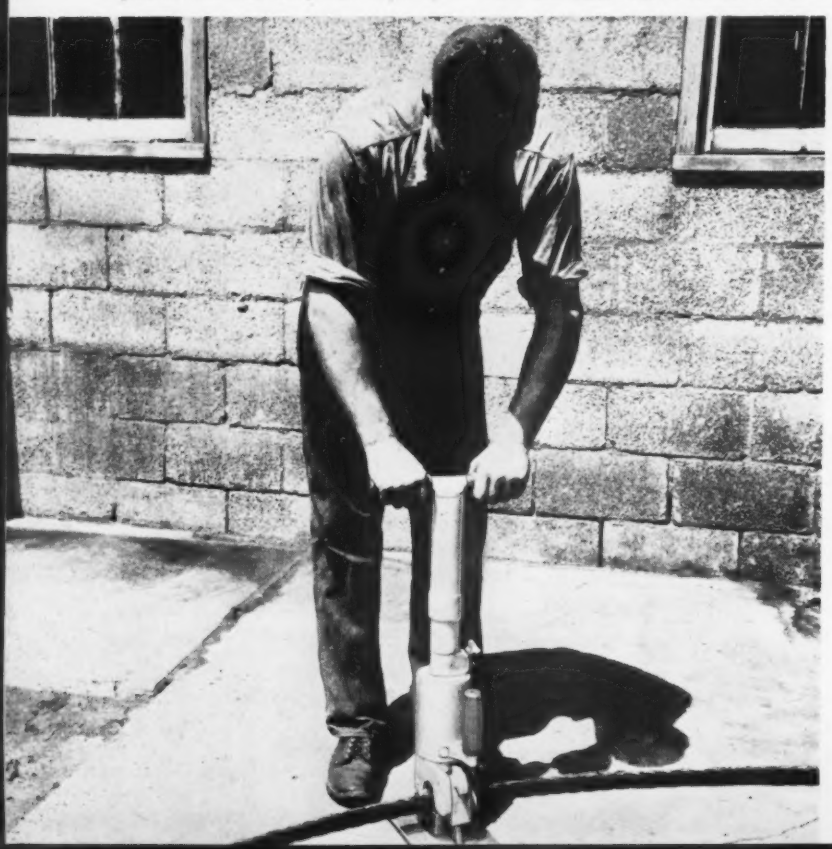


WIRE CREEPER: — New tool enables lineman to string wire across troublesome areas quickly and easily.



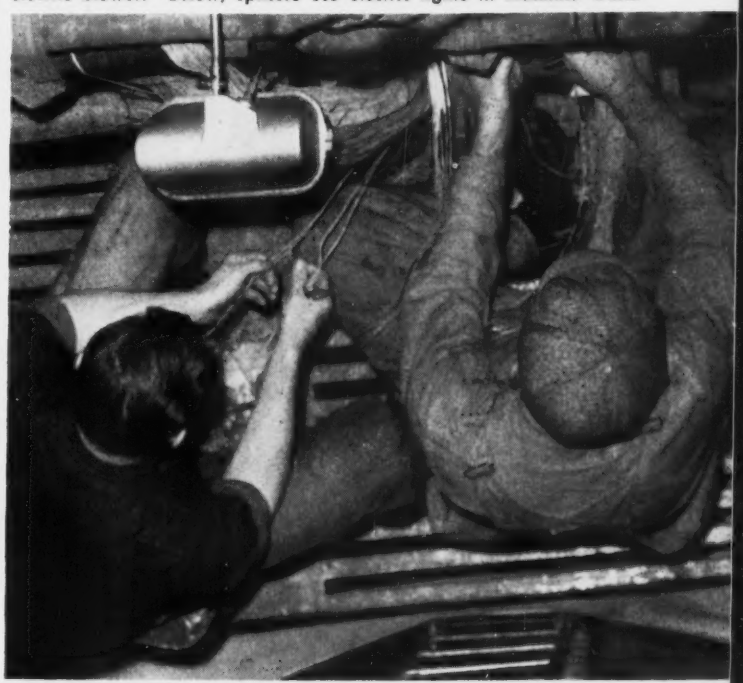
LADDER: — New extension ladder features foolproof safety lock.

MANCO "GUILLOTINE":—Portable hydraulic cutter gives tremendous cutting power. The unit cuts wire rope up to 1¼" and mild steel rod up to ¾".



BRUSH GRINDER:—Portable unit simplifies brush disposal and saves labor and hauling costs.

LET THERE BE LIGHT: — In the past, men working underground had to rely on gasoline generators or battery operated power equipment. Now, at New York Tel. Co.'s request, a temporary power outlet is provided in the base of a designated lamp post. The outlet is moved immediately upon completion of operations. With this source of current, manhole work is simplified. At left worker plugs lead from power cable reel into lamp post outlet. Above, worker plugs in electric blower. Below, splicers use electric lights in manhole work.



Installation of electrical outlets in lamp posts provides light for plant men.

THE TELEPHONE industry's fight against inflation includes the continual search for more efficient and economical ways to do new jobs or do old jobs better. Here are a few typical current developments in the never-ending search for a better way.

Rust-Cutter Loosens Stubborn Nuts and Bolts

THE KEARNEY "Rust-Cutter" is a chemical that will loosen frozen nuts, bolts and other iron or steel hardware indicated in *Fig.* 1. This product can be used to assist in removing corroded nuts and bolts on poles and crossarms in pole removal work and similar dismantling projects.

The Rust-Cutter is claimed to be superior to ordinary penetrating oil, in that (1) it contains a mixture of chemicals, which is fast acting and does not require considerable time for penetration; (2) it is packaged in a self-contained pressurized can for easy application and the atomized liquid reaches otherwise inaccessible rust particles; (3) it leaves a film of long lasting lubricant on the parts thus helping to prevent future galling.

The Rust-Cutter is said to be easy to use anywhere, up the pole or on the ground and will not harm the skin.

New Type Electric Hammer Has Improved Design Features

NEW DESIGN IMPROVEMENTS are said to increase the performance and durability of "Super Slugger" Electric Hammers.

(Please Turn Page)

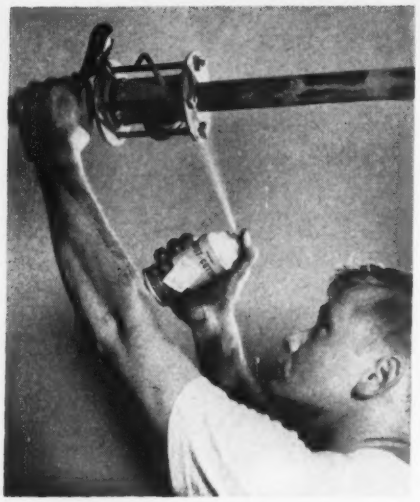


FIGURE ONE — Using the Kearney Rust-Cutter to loosen rust frozen bolts and nuts.

FIGURE TWO — "Super Slugger" Electric Hammer of new improved design.

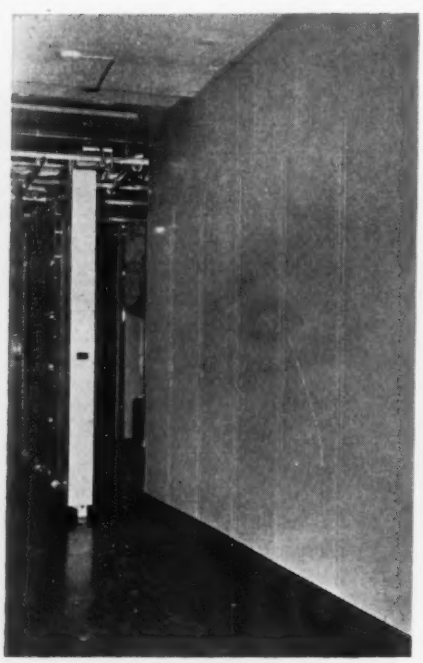


FIGURE THREE — Mobile Fire Wall 10'-1" elevation with double steel top filler above, separating office space from electrical equipment. Bell Telephone Company of Pennsylvania, Pittsburgh, Pa. (Courtesy of Virginia Metal Products Corp.)

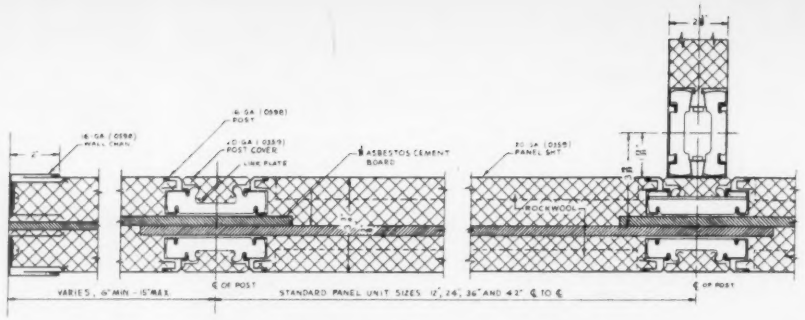


FIGURE FOUR — Detail of Mobil Fire Wall.

Operating on an exclusive, patented principle of motion conversion, the "Super Slugger," illustrated in *Fig.* 2, now employs new type neoprene blocks to give snap to each of the 3,000 blows per minute. The impact motion delivered by the reciprocating piston is fast and positive. Because of the resiliency of the neoprene blocks, the normal 5/8″ piston travel is increased to 1-1/8″ at full speed with resultant powerful impact. At the same time, it is claimed there is no shock or vibration on motor or operator.

A new slide shoe made of Moly Di-Sulfide and a new oil reservoir have been added for longer continuous performance. Six new holding chucks and a number of new tools now broaden the line of "Super Slugger" hand-forged tools for a wide variety of work. Both the tools and the hammer may be carried in the new heavy-duty metal carrying case illustrated.

Weighing only 7½ pounds, the "Super Slugger" Hammer is portable and easily operated with one hand on ladders or scaffolds. It is said to be low in cost and maintenance, and many "Super Sluggers" are now being used to drill, chip or channel concrete and masonry, clean mortar joints, cut sheet metal, scale rust, peen and clean welded joints, strip old plastic or linoleum flooring and do other drilling, chiseling and gouging jobs.

Movable Steel Fire Partition for Telephone Buildings

TELEPHONE ORGANIZATIONS will be interested in a new type of movable partition that resists fire and hose streams and is well suited for use in central office buildings where fire protection is a must. This is the Mobil Fire Wall (*Fig* 3) developed by the Virginia Metal Products Corp., Orange, Va. According to this company, this product meets all the requirements of the Underwriter's Laboratories and A.S.T.M. standard one

FIGURE FIVE — The Desco Circuitracer

hour temperature and hose stream fire test.

The Mobil Fire Wall is a standard half post "RF" steel partition composed of two half walls, each with commercial rockwool batts mechanically applied in the plant and insulated from each other in the field with asbestos cement board to form a factory-finished homogeneous wall assembly, as indicated in *Fig.* 4.

This special fire resistant partition need only be used where actually required, and all adjoining partitions on either side can be any of the standard Mobilwall types produced by this company.

The finish and harmonizing trim is intended to create a quiet, attractive working environment and at the same time the slim walls subdivide space efficiently. When progress demands new layouts the partitions can be moved, (not replaced like plaster walls) causing no dirt, noise, or debris in remodeling. Because only soap and water are needed to keep the walls clean and like new, the company claims but little maintenance is required.

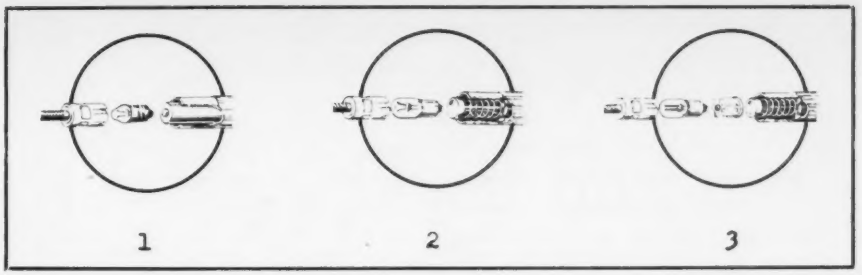


FIGURE SIX — The Desco Circuitracer used as: (1) Continuity tracer for dead circuits; (2) Low voltage live circuit tracer, and (3) High voltage live circuit tracer.

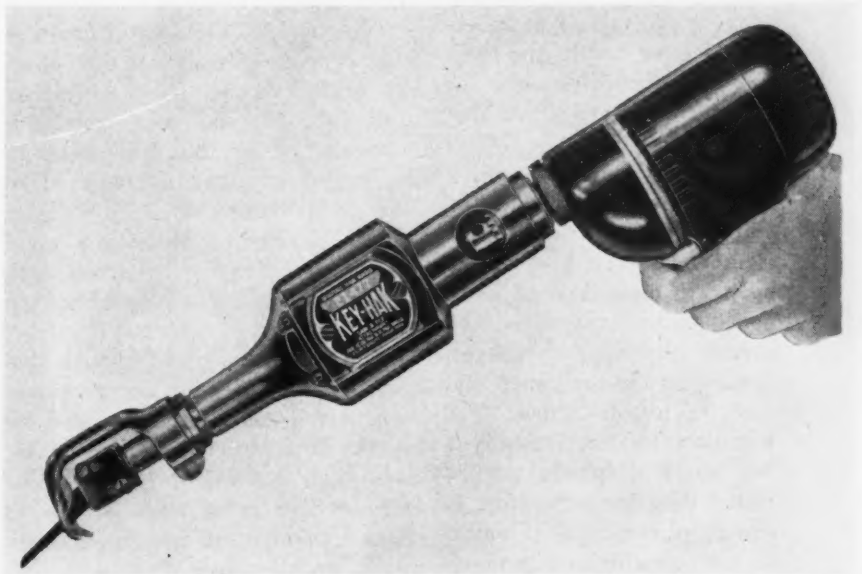


FIGURE SEVEN — The "Key-Hak" portable power saw and file attachment for electric drills.

New Desco Circuitracer Proves Versatile in Test

THE DESCO CIRCUITRACER, manufactured by the Delta Electrical Specialty Co., Pasadena, Calif., is claimed to be versatile in test applications such as the following:

(1) Locating and identifying an open, short, cross, or ground in dead circuits.

(2) Locating and identifying hot wires and grounds from 2 volts to 600 volts, a-c or d-c.

The Circuitracer illustrated in *Fig.* 5 is designed to fill a need for a tool to supplement delicate and expensive volt-ohmmeters. This instrument is said to be rapid and accurate in testing for continuity, shorts, grounds, or the presence of a voltage. This facility in testing is obtained by placing the test lamp in the handle of the prod near the point of contact. It is not necessary for the operator to move his eyes from the point of contact to read a meter. He can progress from point to point without loss of time or the danger of slipping from one contact to another.

As indicated in *Fig.* 6, the Circuitracer can be readily set up for the following tests:

(1) A self-contained continuity tracer for dead circuits with

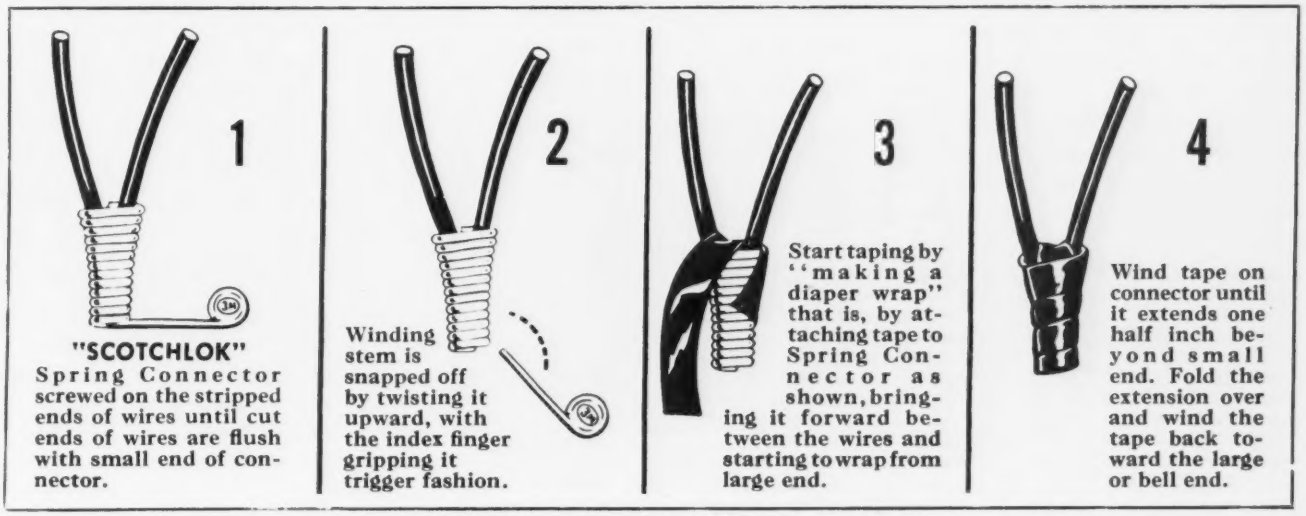

1
"SCOTCHLOK"
Spring Connector screwed on the stripped ends of wires until cut ends of wires are flush with small end of connector.
2
Winding stem is snapped off by twisting it upward, with the index finger gripping it trigger fashion.
3
Start taping by "making a diaper wrap" that is, by attaching tape to Spring Connector as shown, bringing it forward between the wires and starting to wrap from large end.
4
Wind tape on connector until it extends one half inch beyond small end. Fold the extension over and wind the tape back toward the large or bell end.

FIGURE EIGHT — How a "Scotchlok" splice is made

resistance values ranging from dead shorts to about 10 ohms, using a #222 lamp in the lampholder and two "K" size batteries in the handle.

(2) A continuity tracer for dead circuits with resistance values ranging from dead shorts to more than 2,000,000 ohms, using an NE 51 lamp in series with the special resistor provided in the kit. With a small Burgess XX45 67½ volt battery (or equivalent) as an external power supply, the lamp will glow through resistances in excess of 2 megohms. This battery measures only 1¼″ x 2¾″ x 3½″ without sacrificing the portability of the Circuitracer. If power is used from a 110 volt supply, the lamp will glow through resistances up to 4 megohms. The greater the applied voltage, the higher the resistance that can be tested. (Note: The manufacturer recommends a d-c external power supply rather than an a-c supply, in order to avoid false indications of continuity due to capacitance.)

(3) A self-contained high voltage live circuit tester for hot circuits ranging from 60 volts to 600 volts a-c or d-c, using a NE 51 lamp and special resistor installed in the lampholder.

(4) A self-contained low voltage live circuit tester for hot circuits ranging from 2 volts to 60 volts a-c or d-c. This arrangement employs a filament lamp of the proper voltage value in the lampholder.

The Circuitracer is well adapted to testing telephone circuits. In central offices it can be used for tracing from terminal to terminal through wiring in switchboards, switch banks, and relay equipment.

The Key-Hak—"A Tough Little Guy for Big Tough Jobs"

THE KEY-HAK, manufactured by Producers and Distributors, Inc., Allentown, Pa., is a portable power saw and file attachment for standard heavy duty ¼″ or 5/16″ electric drill that converts it to do the work of a key hole saw, hack saw, or scroll saw. This tool attachment is illustrated in *Fig.* 7.

The Key-Hak requires no starting hole. It enters directly into the material whether wood, sheet metal, or steel plate. It has 360° rotability without turning the drill and can be turned by hand as required to change the cutting direction while in use. A variety of blades for wood cutting, metal cutting, or scroll work are available for the type of cutting work to be done.

This tool attachment should find considerable use in the telephone company garage, tool shop, and for special installation of central office, subscriber station, or P.B.X. equipment where holes must be cut in panels, equipment housings, doors, walls, and the like.

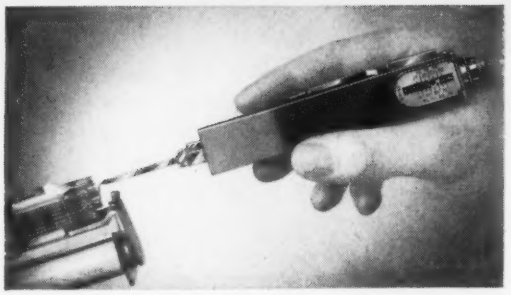


FIGURE NINE — New G.E.C. Tension Gauge for measuring spring tension (Courtesy Imtra Corp.)

New "1-2" Splice Made With "Scotchloks" and Scotch Electrical Tape

THE MINNESOTA Mining & Mfg. Co., St. Paul, Minn. has developed a new type of electrical spring connector for quick splicing of insulated wires.

According to the company, this connector or "Scotchlok" is listed by Underwriter's Laboratories as both a fixture and pressure type connector for combinations of wires in sizes Nos. 16, 14, 12, and 10, stranded and solid conductor. It is claimed that the Scotchlok spring connector will fasten the wires together neatly and quickly, and is shake proof.

After connecting together the two wire ends, Scotch Electrical Tape No. 33 is used to insulate the splice. The two steps of connecting and insulating the wires are illustrated in *Fig.* 8.

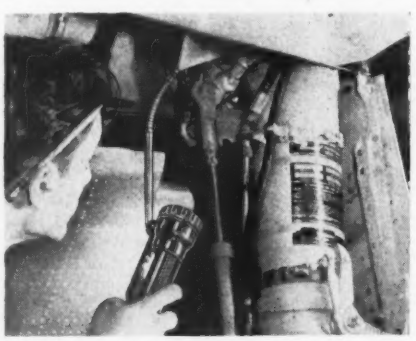


FIGURE TEN — Flexible probe light arm of new Usalite "Duo-Flex" flashlight enables mechanic to throw beam of light into dark corner of mechanism.

New G.E.C. Tension Gauges for Accurate Spring Gauging

THE G. E. C. TENSION Gauges, manufactured by The General Electric Co., Ltd., of England, and distributed by Imtra Corp., Cambridge, Mass., are precision measuring instruments for determing the tension of any spring up to 2500 grams with micrometer accuracy.

The gauge, illustrated in *Fig.* 9, is pre-set to the required tension in grams by means of a knurled presetting screw. The operating strip is then applied to the tip of the spring under test. Deflection of the operating strip to either side, simultaneously with the movement of the spring under test, indicates that the spring tension is equal to the gauge setting. The user can concentrate attention on the movement of the spring under test without having to try to observe a gauge scale at the same time. Two interchangeable operating strips are stated to provide an easy, rapid and accurate means of testing springs in all positions.

New Industrial Flashlight With Built-In Dual Light

THE USALITE "Duo-Flex," manufactured by U.S. Electric Mfg. Corp. is a new industrial flashlight with patented built-in dual lighting system providing a probe-light for pinpoint inspection of inaccessible parts and equipment. It is designed for use by mechanics, precision workers and inspectors, and should be of value to central office equipment men in

checking places in office apparatus that are difficult to see into clearly.

As indicated in *Fig.* 10, the "Duo-Flex" has both a 1000-foot flashlight beam, and flexible slide-out cable with bulb and plastic guard. When side-arm is extended, light is automatically transferred to the small bulb, and the extension tube encased in the arm can be goosenecked around corners or into deep out-of-the-way spots. The over-all extension of the probe-light arm measures 10½".

The flashlight housing is heavy-walled plastic with red "danger zone" lens ring, fixed focus bulb and reflector for long range lighting — detachable end cap with spare bulbs and snap-back ring, and three-way safety switch for steady light, with flasher button for code signalling.

New Ice Remover

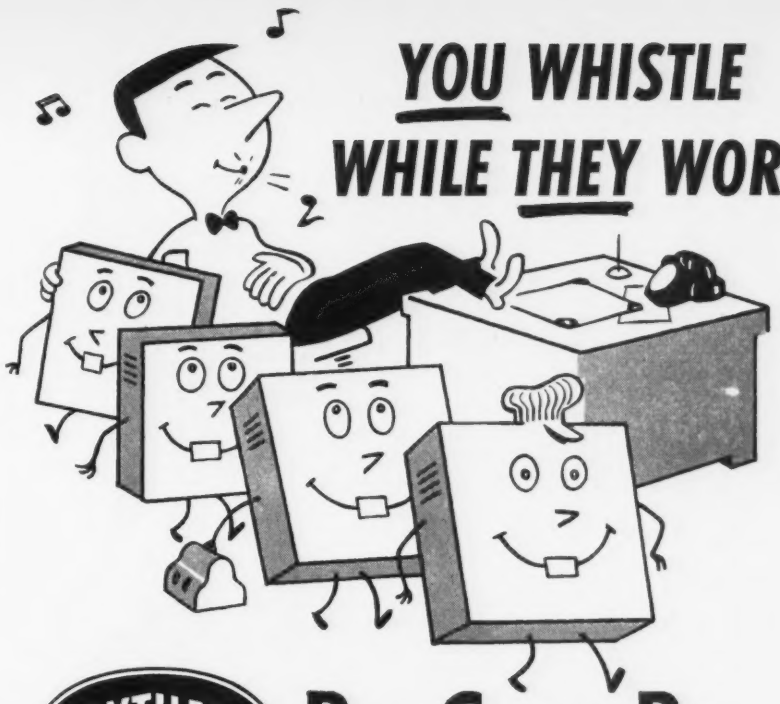
AN ICE removing chemical which is reputed to greatly cut the winter cost of cleaning steps, walks, drives, loading docks and parking lots is now available.

Known as X-73 Ice Remover, the product is said to melt ice and thaw snow many times faster than salt; and to eliminate ice chipping and greatly

Fig. 11—X-73 Ice Remover reduces the need for ice chipping.

reduce the need for snow shoveling. It is also claimed to contain a rust inhibitor which affords protection to automobiles, machinery, drains and gutters.

Monroe X-73, produced in the form of coarse granules, is easily used by sprinkling lightly over icy surfaces. According to Monroe Co., Inc., it spreads itself thoroughly to melt slippery ice and snow. It is recommended for furnishing quick traction under spinning automobile and truck wheels.



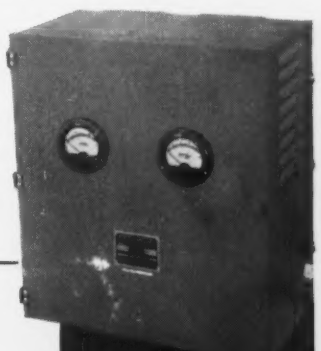
RAYTHEON RECTICHARGERS
(BATTERY CHARGERS)

You can be completely carefree about battery charging with Raytheon RectiChargeRs on the job. They go on year after year following the load automatically — maintaining constant voltage output over the entire load range — keeping batteries fully charged — prolonging battery life by preventing over or undercharging — and require routine inspection only once or twice a year.

Striking proof of dependability is shown in the results of tests made on a RectiChargeR after 15 years of continuous service. Engineers found it as good as ever — not the slightest impairment of electrical qualities — no mechanical deterioration whatever.

In fact there's no reason it couldn't go on for many more years giving the same trouble-free service.

Dependability counts heavily in the Telephone Industry — one reason why Raytheon RectiChargeRs are so widely used.

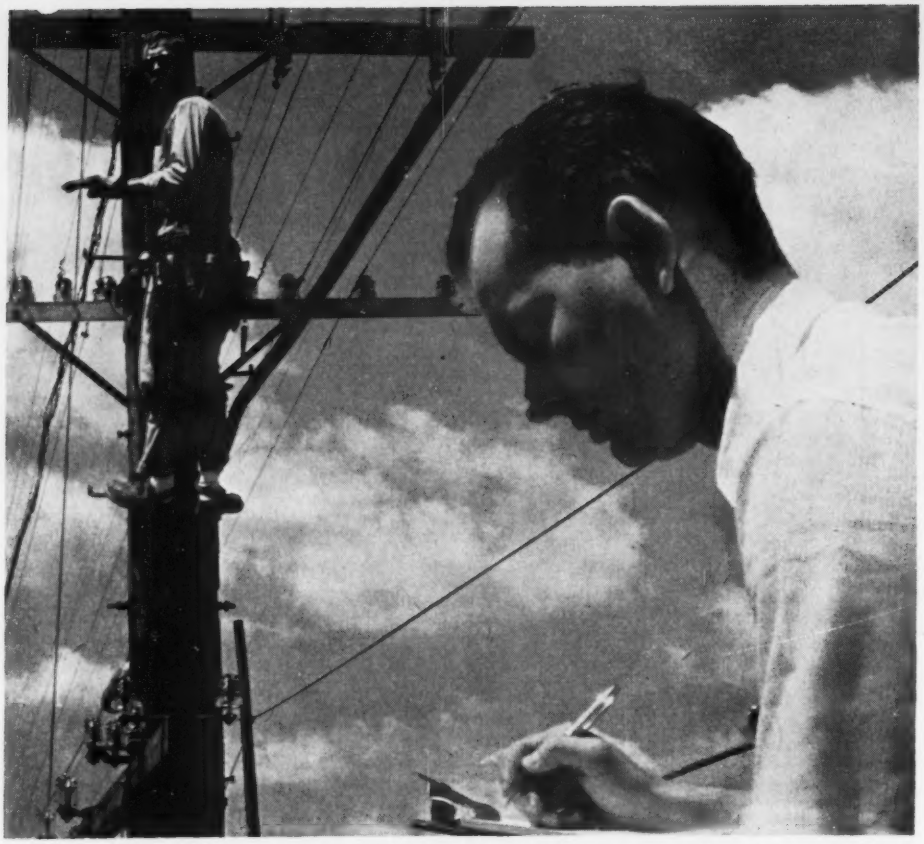


RAYTHEON
MANUFACTURING COMPANY
EQUIPMENT SALES DIVISION
DEPT. 6270-TE, WALTHAM 54, MASSACHUSETTS
DISTRICT OFFICES: BOSTON, NEW YORK, CLEVELAND, CHICAGO, NEW ORLEANS, LOS ANGELES (WILMINGTON), SAN FRANCISCO, SEATTLE
INTERNATIONAL DIVISION: 19 RECTOR ST., NEW YORK CITY

RAYTHEON PRODUCTS INCLUDE: RectiChargeR* battery chargers; RectiFilteR* battery eliminators; Voltage stabilizers (regulators); Transformers; Tubes and other electronic equipment.

* Reg. U. S. Pat. Off.

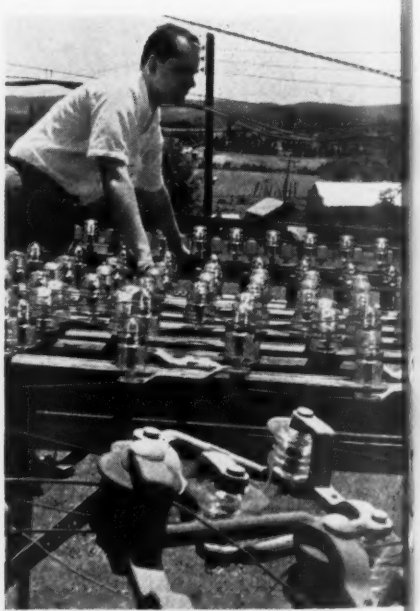
Specify Raytheon RectiChargeRs and RectiFilteRs for completely dependable Telephone service. Your supplier offers a complete line for all requirements. Ask him for details or write direct.



TELEPHONE PROVING GROUND:—This is the Chester test station of Bell Telephone Laboratories, located on a high plateau in the picturesque dairy region of New Jersey. On its nearly 100 acres increasingly familiar apparatus in the Bell System received initial weathering. Wire, poles, crossarms, insulators and many other of the components of outside plant have been tested here during the past 24 years. Here, open wire sag measurements are being made.

"If there is a faster and more economical way of doing the job the plant department will find that way . . ."

TESTING CABLES: — Poor connections and leakages in the cable sheath can mean premature wear, short circuiting, corrosion of conductors and possible disruption of service. One important means of preventing such troubles is to maintain the cables under gas or dry air pressure. An important component part of any cable pressure system is the cable plug. Here at the Chester test station of Bell telephone Laboratories many experimental types of cable pressure plugs are under test.



SEA OF INSULATORS: — No phase of equipment testing is overlooked at the Chester Station of Bell Telephone Laboratories. This is a line insulator exposure test. Insulators are being arranged for electrical measurements.

WOOD SAMPLE WEATHERING: — Decay has great meaning for overall telephone service economy. Bell Telephone Laboratories has a special "bioassay" section dealing with this topic. Above photo shows wood samples at the Chester Laboratory weathering out-of-doors.

CRISIS FOR CROSSARMS: At the field test station of Bell Telephone Laboratories, crossarms are subjected to "torture" —to simulate the strain from ice accumulation and normal pressure of cables.

New Materials and NEW METHODS

By RICHARD ALLEN

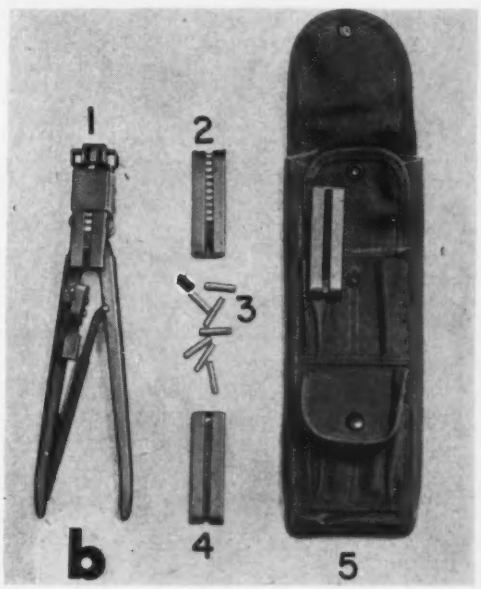


Fig. 1 — New tool for Wiremen — Signal Corps Wire Splicing Tool, TL-582/U: 1 — The tool; 2 — magazine loaded with ten splicing sleeves; 3 — wire splicing sleeves; 4 — empty magazine; 5 — canvas carrying case for the tool and four magazines.

THEY MUST HAVE a slogan in the plant department that goes, "if there's a faster and more economical way of doing the job we'll find it."

There is hardly a week passes that there isn't some new development to make the job easier for the plant men and at the same time give the customer better service.

These new developments and work methods are in evidence on almost every job. Pictured and described in this article are some recent innovations that are helping the plant department do a better job for the company and the customer.

New Tool Speeds Signal Corps Wire Laying and Repair

A NEW TOOL for rapidly splicing communication wire has recently been developed under Signal Corps sponsorship by Aircraft-Marine Products, Inc., Harrisburg, Pa. This

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FIG. 2 — Using the wire cutter and stripper attached to the tool preparatory to making the splice. (U.S. Army Photo.)

THE ELECTRONIC SE

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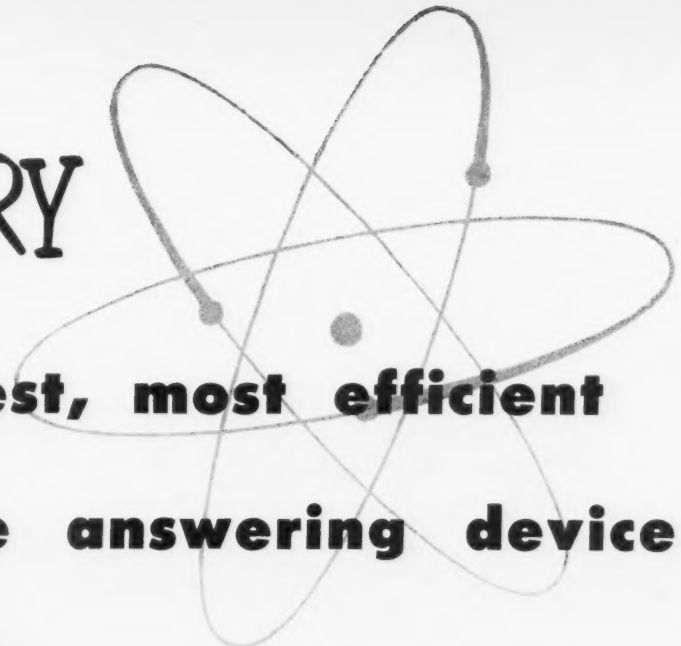
C SECRETARY



the simplest, most efficient telephone answering device available

This new Electronic Secretary provides the simplest, most effective 24-hour answering service available. Here's what it does: *Answers the telephone when nobody's in the office . . . takes and holds calls when other lines are busy . . . records name, number and message . . . takes orders, makes appointments . . . transfers calls to other numbers*—actually gives a complete secretarial service when no one is in the office.

HERE'S HOW IT WORKS The Electronic Secretary is composed of standard electronic radio and record player parts and operates by merely turning a simple on-off switch when you leave the office. Then whenever the telephone rings the Electronic Secretary sends out its answering message identifying your firm and instructing the other party to leave name, number and message. The machine, after a predetermined interval, thanks the calling party and frees the line for the next call. When you return you simply play back the recorded messages to find out who called while the office was empty. It's as easy as that! No fuss, no trouble!

SELLS ITSELF A simple demonstration will convince local businessmen that they can make more money and give better service with this device. The general manager of an independent company hooked up an Electronic Secretary in his offices. Then he arranged for several local businessmen to call and see exactly how it worked. The people were so enthusiastic that six of them ordered machines. The Electronic Secretary, on this one call, proved itself a high potential sales tool for aggressive businessmen.

BUILDS REVENUE Here's a wonderful source of added revenue for telephone companies. More and more telephone people are discovering that supplying telephone answering service pays big dividends. The nice part is that the simplified construction and trouble-free operation of the Electronic Secretary makes the service highly profitable over a long period of time.

INSTALLED IN 5 MINUTES Your service man can install the Electronic Secretary by merely attaching two wires across the telephone line at the connecting block and plugging the Electronic Secretary into a standard 110 V. A. C. outlet. The installation is complete in 5 minutes and it is not necessary to locate the machine near the telephone.

USED BY MANY DIFFERENT BUSINESS SUBSCRIBERS Almost any business can profit by the Electronic Secretary which gives a complete 24 hour service. Lumber yards, department stores, TV and radio repair shops, laundries, groceries, auto dealers, doctors, dentists, in fact, anyone who offers a service is a prospect.

Write us at Leich. We'll give you full information and gladly arrange for you to see a complete demonstration of this amazing revenue builder. Leich Sales Corporation, 427 W. Randolph St., Chicago 6, Illinois.

MANUFACTURERS OF TELEPHONES, SWITCHBOARDS AND RELATED APPARATUS SINCE 1907

GENERAL TELEPHONE — TELEPHONE — SYSTEM

FIG. 3 — Completing the splice. One closing of crimping jaws crimps conductors and seals plastic insulating sleeve to wire insulation. (U.S. Army Photo.)

FIG. 4 — On completion of splice, wire and sleeve are released from tool. Shown here is the section of wire with two completed splices. (U.S. Army Photo.)

semi-automatic splicer is expected to eliminate to a great extent the slow hand-splicing method which has been used for many years by Army wiremen. According to the manufacturer, the splicer is so easy to use that perfect splices can be made quickly, even when extreme cold requires the wearing of mittens.

When field wire is damaged by shell fire, tanks or sabotage, the wiremen must repair it, often under fire. The old method involved stripping the wire ends, tying the strands into a knot, carefully tying two strands around the knot, and taping the splice with rubber tape and friction tape. Even under perfect conditions a well trained wireman requires 3 to 4 minutes to make this splice. In arctic regions, this time is greatly increased, and the man is subjected to frost-bite.

With the new tool and splicing sleeves, illustrated in *Fig* 1, the manufacturer states that excellent waterproof splices of high tensile strength can be made in less than 30 seconds without the use of tapes or other tools. Moreover, a novice can be trained on the spot, while several hours of instruction are required for the old method. A man wearing heavy mittens can easily make first-class splices under the most unfavorable conditions.

The new splicing method is simplicity itself. As shown in *Fig.* 2, the wires to be joined are stripped with a stripper attached to the tool handle. A tubular connector sleeve is forced into the jaws of the tool from the magazine in which it has been carried. The ends of stripped wire are inserted into the connector sleeve, and the tool handles are squeezed together, completing the splice (*Fig.* 3). A ratchet device makes opening of the crimping jaws impossible until enough pressure has been applied to insure a perfect splice which is neat, strong and waterproof. *Fig.* 4 illustrates the neatness and compactness of the spliced joints.

Spiral Vibration Damper for Small Solid Wires

THE SPIRAL Vibration Damper (Pat. Applied For), developed and manufactured by Copperweld Steel Co., Glassport, Pa., provides a simple, inexpensive method for reducing or eliminating wind-induced resonant vibration in small solid wires as used on overhead line construction.

When conductors are properly installed with low normal tensions, vibration is not a serious problem. However, in some areas where low temperatures or continuous winds are prevalent, or where high normal tensions are knowingly used to correct clearance or separation problems, a fairly large amplitude of vibration may develop. In these cases chafing or tie wire burns may result, or fatigue fracturing of the wire at sleeves and points of support may become a problem. Also, instances of electrical interference with talking

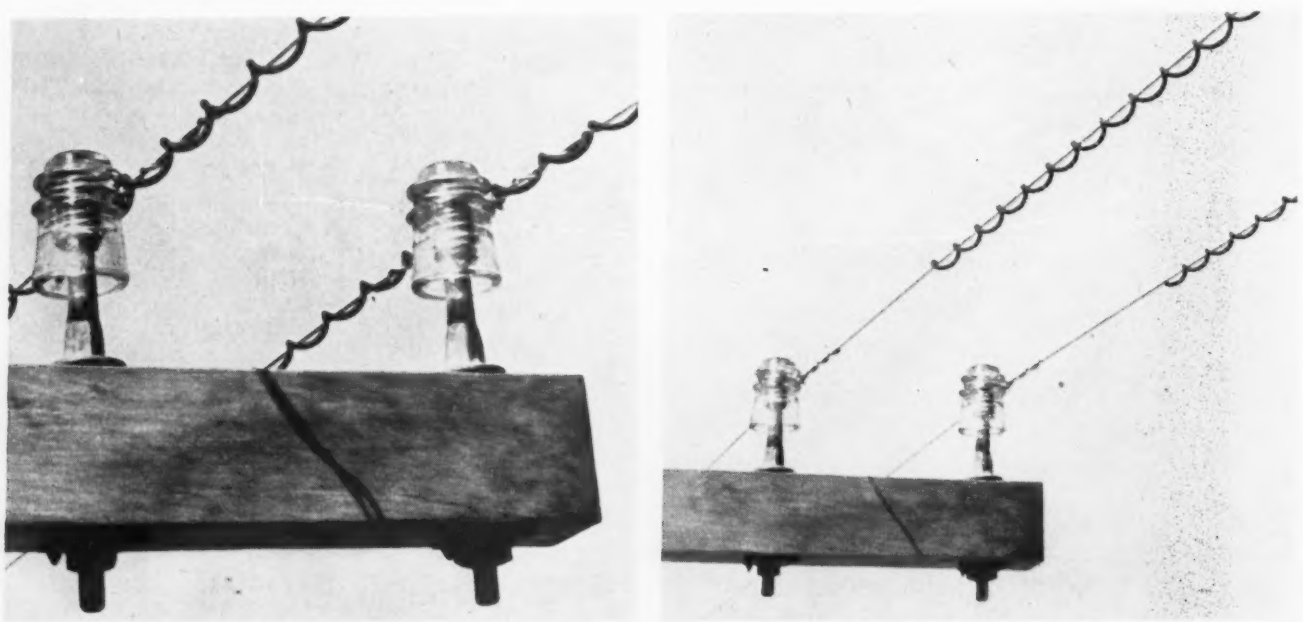


FIG. 5 — Spiral Vibration Damper in line section. (a, left) Attached with mid-section spanning the insulator. (b, right) Unattached and floating out in span.

circuits due to magnetostriction have been noted. The damper was developed to reduce or eliminate these types of difficulties.

The Spiral Damper is an open helix of insulated Copperweld wire, 50 inches long, which can be quickly and easily installed over a solid wire conductor. It is designed for use on No. 8, No. 10, and No. 12 Awg line wire. With the inside diameter of its helix larger than the diameter of the line wire, the damper is free to bounce and make intermittent contact at a multiplicity of points on the line wire. This intermittent contact provides a continually changing effective weight and opposes the conditions tending to set up resonant vibration.

According to the manufacturer, both field and laboratory tests have demonstrated the effectiveness of the Spiral Vibration Damper. In field tests, vibration was deliberately induced by high conductor tensions and stopped by application of the damper. In laboratory tests, forced vibrations were induced by passing an alternating current through a span wire located in a steady direct current field. Under these test conditions the vibrating force is proportional to the alternating current in the span wire and the effectiveness of the Damper can be gaged by the reduction in vibration amplitude. For example, an undamped conductor reached a vibration amplitude of

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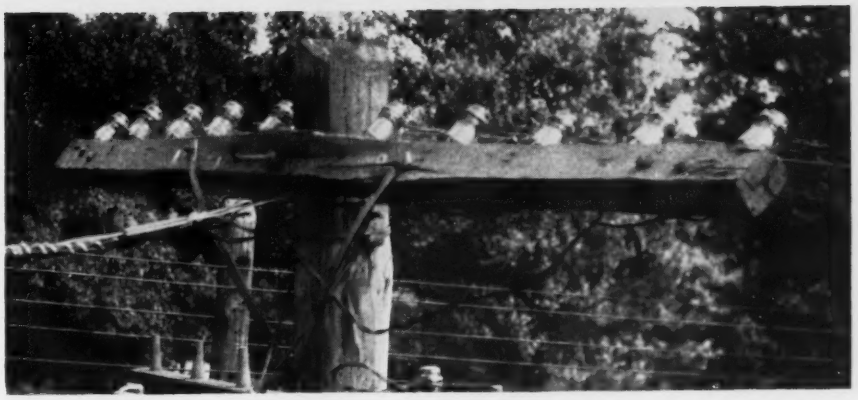


FIG. 7 — Unsatisfactory result of terminating line wires on single unbraced crossarms. (Courtesy A. B. Chance Co.)

FIG. 8 — Illustrating construction of Chance back truss.

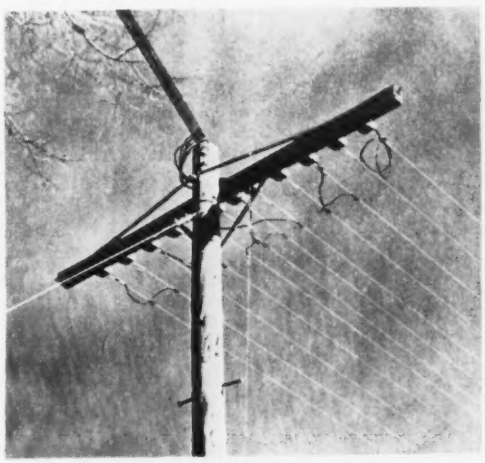


FIG. 9 (left) — Chance back truss applied to 12-wire dead-end arm.

FIG. 10 (above) — Chance terminal dead-end bracket with spool type insulator.

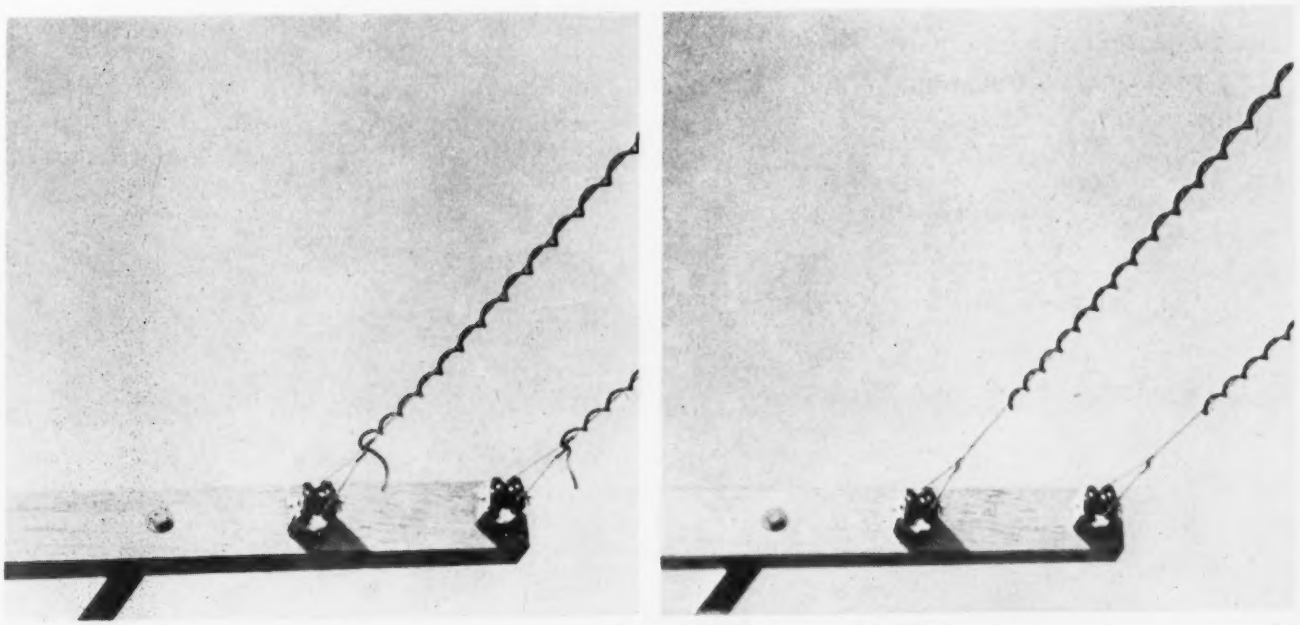


FIG. 6 — Spiral Vibration Damper at dead-ends. (a, left) Attached to dead-end fitting. (b, right) Unattached and floating out in span.

During the morning rush hour, Mrs. Smith tries to call the meat market, but . . .

. . . a number of large offices . . .

. . . many stores . . .

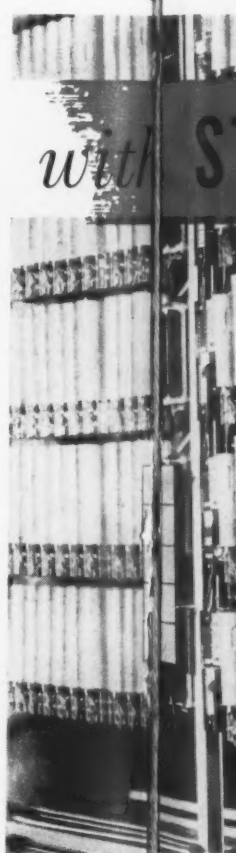
. . . and sever
using the same

End These Busy-Hour Delays

Busy-period delays are rare with Strowger Automatic—a point subscribers really appreciate! That's because Strowger's **200-line** groups permit better balancing of lines through proper line assignment than is possible with smaller groups.

Proper line assignment distributes busy-hour traffic evenly over all groups in an exchange. It puts into each group a proportionate share of various types of business and residential lines with high and low calling rates. It is easier and more accurate with Strowger Automatic 200-point linefinders —because average subscriber habits are more uniform in groups of 200 than in smaller groups! By making line assignment more effective, the 200-point linefinder helps make more trunking paths available and insures fewer tie-ups during rush periods. It gives you fuller use of linefinder capacity, less idle equipment, more equipment in use.

The 200-point linefinder is typical of many features which gear Strowger Automatic to meet today's needs best. Write us. Let us show you why Strowger Automatic is known the world over as the telephone man's soundest investment.



. . . and several big factories are all using the same trunk group as she is . . .

. . . so, even though the meat market's telephone is not in use . . .

. . . Mrs. Smith must wait to make her call.

ys . . .

STROWGER AUTOMATIC!

AUTOMATIC ELECTRIC

Originators and Developers of the Strowger Step-by-Step "Director" for Register-Sender-Translator Operation . . . Machine Switching Automatic Dial Systems
Makers of Telephone, Signaling and Communication Apparatus . . . Electrical Engineers, Designers and Consultants

Distributors in U. S. and Possessions: Automatic Electric Sales Corporation
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1033 West Van Buren Street, Chicago 7, U. S. A.

over one inch with only 2 amperes of line current while on the same span, but with 10 amperes or 5 times the vibrating force applied, the resonant vibration was eliminated and the non-resonant motion held to less than ¼ inch. These laboratory tests are considered much more severe than observed field conditions.

To install the Spiral Vibration Damper, place the inside of the helix against the insulator or line wire at approximately the mid-point of the damper. Then wrap the Damper onto the line wire working out from the mid-point in each direction. The factory preformed helix insures uniformly good performance.

The location of the Damper is not critical. It may be attached with its mid-section spanning the insulator, as in *Fig.* 5 (*a*), or it may be wrapped over the line wire and allowed to float or run freely into the span as in *Fig.* 5 (*b*). The Damper does not eliminate the need for a tie at the insulator and should be installed after the conductor has been tied to the insulator. When installed over the tie, one Damper is used at each tie; and when allowed to run in the span, one Damper is used in each span.

At dead-ends also, the Damper position is not critical. It may be restrained as illustrated in *Fig* 6 (*a*), where the end of the Damper is bent and looped through the dead-end fitting. Alternatively it may be allowed to float or run freely into the span as illustrated in *Fig.* 6 (*b*).

Back Truss For Improving Stability of Dead Ends

TELEPHONE DEAD ends have been made up in various ways. The method whereby the wires are terminated on a single crossarm without proper bracing is probably the worst and may produce the unsatisfactory result pictured in *Fig.* 7. The Chance back truss shown in *Figures* 8 *and* 9 will hold the arm in position and prevent distortion. According to the company, the truss will add years of life to the crossarm by relieving the strain on the center and ends of the arms. This truss distributes the load evenly over the full length of the arm. Steel straps at critical stress points midway between the pole and the arm end take the bending forces off the center and help to balance the load.

FIG. 11 — One man feeds brush into the machine and in a matter of seconds, the M & M brush grinder chews the brush into small wood chips that are automatically blown out at the discharge.

The ¾″ back truss is rated at 1,000 pounds pull on each of ten equally spaced terminal brackets on a ten foot arm. A ⅝″ back truss rod is rated at 500 pounds pull per bracket.

A new back truss, R.E.A. approved for rural telephone installations, fits a six-foot crossarm. It has a heavy ¾″ diameter rod tested to sustain a maximum load of 15,000 pounds or 1500 pounds pull for each of the ten conductors.

Terminal brackets used with the back truss make a good dead end construction job. The Chance bracket (*Fig.* 10) does not require a cotter key, nut or lock washer to keep the pin in place. Bending the tongue on the top of the bracket down against the head of the pin will prevent the pin from slipping out. This elimination of the cotter key or nut makes the application faster, saves handling an extra piece.

From Brush to Chips in Seconds

THE NEW MODEL No. 3 Brush Grinder, manufactured by Mitts & Merrill, Inc., Saginaw, Mich., is considered an ideal machine for telephone companies concerned with brush disposal. It is a portable unit with its own power plant for grinding up branches, tree trimmings, and brush into small wood chips. (*Fig.* 11). The brush grinder simplifies brush disposal and saves labor and hauling costs. It will reduce seven truckloads of brush to one truckload of wood chips, with one man doing the work. As indicated in *Fig.* 11, he feeds brush and branches into the grinder where they are chewed into small, useable wood chips and automatically blown into a truck or into a neat pile on the ground. The angle of feed, with respect to the cylinder, is such that the branches are drawn into the machine with little effort on the part of the operator. This grinder will take branches and brush (either green or dry) up to 6″ in diameter. It will grind from 2,000 to 3,000 lbs. of brush per hour on a continuous operating schedule.

The new M & M brush grinder is easy to transport. A standard ball type trailer hitch fastens securely to jeep, car or truck. When unhitched, the retractable jack keeps the unit level and allows it to be moved around easily. The brush grinder is strong and well built for long life and continuous service under severe operating conditions. The flat face sectional cylinder is made of cast steel supported by oversize, extra heavy roller bearing pillow blocks mounted on a welded steel frame for maximum safety, rigidity and perfect balance. Eight revolving cutting knives made from specially selected alloy steel are bolted to the cylinder with steel knife screws. The welded steel trailer frame is built to withstand heavy vibration. All moving parts are carefully guarded, yet they are readily accessible for quick and easy maintenance.

Extension Ladder With Novel Type Automatic Safety Lock

THE LEACH CO. of Oshkosh, Wisc., produces extension ladders with a novel type of safety lock that is stated to be positive in action and fool proof. The ladder is extended by pulling on the rope. The safety lock automatically lifts up to allow the rungs on the upper section to pass. The instant the operator lets go of

the rope, the locking device drops into place and catches the first rung. To lower, the operator gives a slight pull on the rope and then lets the top section descend slowly. It cannot accidentally drop. The operation of the automatic safety lock is depicted in *Fig.* 12.

Another advantage of the automatic lock is that the top section can be easily disengaged for use as a single ladder while the entire unit is in the carrier on the truck. It is only necessary to pull on the rope to raise the automatic lock, draw out the top section from under the lock and guides, and untie the rope to completely free the section. Since the guides are all fastened to the bottom section, the top section will have no encumbrances to interfere with its use as a single ladder.

The top ends of both sections are covered with thick corrugated rubber which prevents the possibility of marring the finish of the house against which the ladder is placed. These corrugated safety tips also minimize skidding or slipping of the ladder.

For those desiring this feature, safety pole grippers can be attached for pole line work and used as shown in *Fig.* 13. The lineman adjusts the grippers to correspond with the diameter of the pole and then tightens them firmly with the two wing nuts shown. The teeth are angled inward to check any side sway of the ladder. When not in use, the grippers can be swung securely out of the way.

Safety pikes are furnished on both sections of the ladder. These pikes are protected by a thick spongy rubber guard. The guards push back when the ladder is set up and the pikes enter the ground to hold the ladder from slipping.

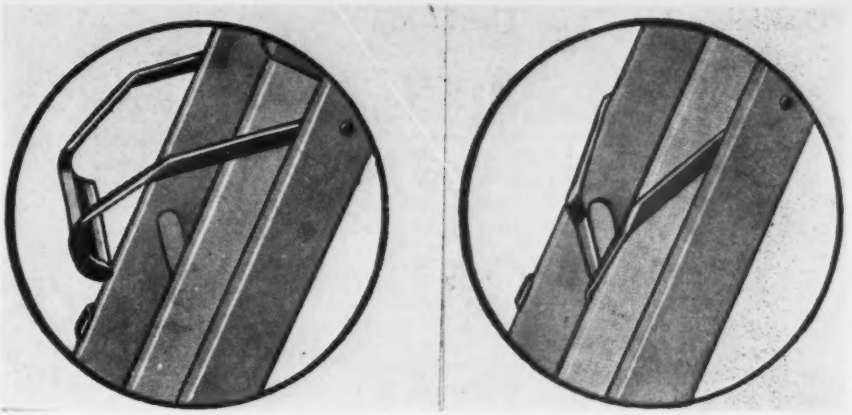

FIG. 12 — Showing operation of automatic safety lock on Leach ladder. Left-Lock in raised position. Right — Lock in closed position.

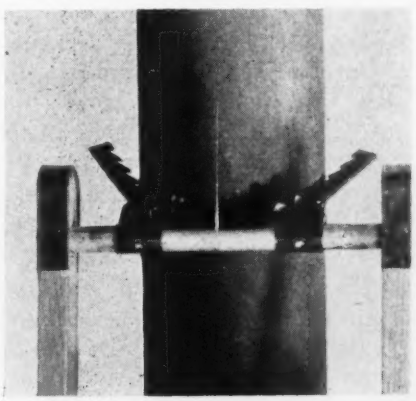

FIG. 13 — Showing use of pole grippers on Leach Company extension ladder.

Iron Coating Prolongs Life of Soldering Iron Tips

SOLDERING coppers found in the ruins of ancient Roman cities show that the technique of soldering—and even the shapes of the tools themselves—have changed very little in more than 2,000 years. Even though there is now a large variety of sizes and tips to do all the special jobs that modern industry has created, and the irons are heated with electricity instead of in crude charcoal burners, the same basic elements—tin, lead, and copper—are still used. Because of its high heat conducting property, copper is used exclusively in the soldering irons.

For most soldering operations, an alloy of tin and lead is employed to bond joints and seams in metal work. The common difficulty is that the tin in the solder and the copper in the tip amalgamate, forming a soft, spongy mass which interferes with the soldering operation. This condition is apt to occur when the tin content of the solder is 40 percent or higher.

This amalgamation, however, can

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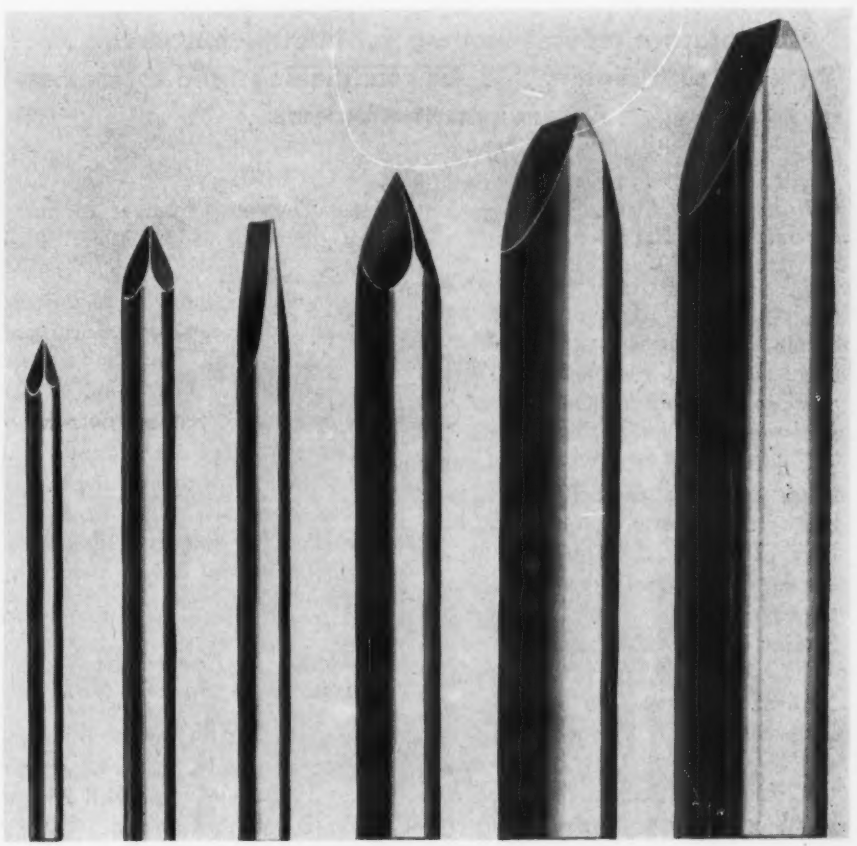


FIG. 14 — Illustrating variety of iron plated copper tips available for plug tip type soldering irons (Courtesy American Electrical Heater Co.)

PRACTICAL How-To-Do-It SUGGESTIONS

By JOHN G. REYNOLDS

Managing Editor
Telephone Engineer Publications

New practice reduces requests for information service . . . speeds cord repairs . . . Air conditioning used to combat equipment problem.

Illinois Bell Starts New Information Practice

MOST TELEPHONE users who call for information on Chicago numbers now are hearing something new. It is this response: — *"That number is listed in your directory. Will you look for it there, please?"*

This new practice, which went into general use Aug. 17, does not mean that information service has been changed. It is an educational attempt to show subscribers how they can obtain the number faster by finding it in their directories.

Illinois Bell Telephone Co. has 500 information operators in Chicago. Information calls average 140,000 a day. Of this total, 80 per cent of the telephone numbers requested are listed in the directory.

Calls for information have increased more than 43 per cent since 1946. They now number 21 out of every thousand calls made. If the increase continued at this rate, it soon would be impossible to properly serve customers seeking information.

Operators still continue to give numbers without hesitation, a company spokesman pointed out, in any emergency, or for city, county, state or federal government offices, for doctors, hospitals, police or fire departments, for suburban subscribers and to those who have no directory or are unable to use one.

Desiccant Is Forced in — Dampness Is Forced Out

"IT ALL STARTED like this," Andrew (Andy) Smith, a cable splicer in Pennsylvania Bell's Upper Darby District, explained. "One of the biggest headaches on cable maintenance was the elimination of dampness in a splice. We have desiccant — a powder that absorbs dampness — for such conditions, and it works if given a chance. The trouble was that it was difficult to distribute the powder evenly over, around and among affected cable wires without removing the lead sleeve at a suspected trouble area . . ."

That was the condition before Smith did a bit of experimenting. At first he slit the lead sleeve over the top of a damp cable splice and poured the desiccant evenly over the wires. It didn't work out. Eventually, the lead sleeve had to be removed to clear the trouble.

On a similar job, he drilled a small hole in the lead sleeve and, with the aid of a funnel poured the desiccant over the cable wires. This, too, backfired. Then Smith asked — "Why not force desiccant into a splice under pressure?"

He went to work on the idea. In the cap, from a can of desiccant, he drilled a small hole and inserted a tire tube valve stem so that it would extend down into the container a dis-

Please turn to page 74

POWERS American SERVICE BODIES AND EQUIPMENT

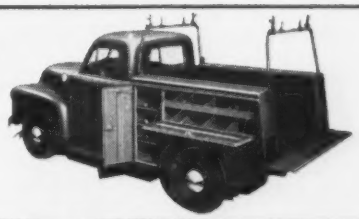
The 1 Source
for utility bodies and equipment!

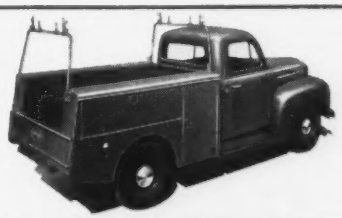
If your work calls for one service body or a hundred . . . if you can use standardized units or require custom-made equipment . . . you'll find a body to fit your needs in the Powers-American line. Ladders, reels, racks, hooks, brackets, shelves, and other special items of equipment, can be furnished for your particular work requirements.

May we help you with your service body problems? Complete details will be sent upon request.

Series 44L and Series 44 (shown above) designed for any general service work. Fully-equipped with shelves and bins. For ½, ¾, 1, and 1½ ton chassis.

Series 25T and 35T arranged for telephone installation and service. Widely used in other phases of utility work. Available in ½ and ¾ ton sizes.





Series 25M and 35M used for all types of general service. Especially suitable for electric meter installation and maintenance. Models for ½ ton and ¾ ton vehicles.

Series 25G and 35G designed for use in the installation and servicing of gas meters. Equipped with meter hold-downs, bins, and pipe rack. In ½ and ¾ ton sizes.

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McCABE-POWERS AUTO BODY COMPANY

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FIG. 1 — New weapon against skidding operates electronically by a convenient switch on steering post.

FIG. 2 — The switch and luggage compartment units of the new road sander ("Grip-King") are easily installed.

tance of about one inch. On the side of the can, near the bottom, he drilled a second hole to accommodate a a small L-shaped section of copper tubing. From a tank of dry nitrogen gas he extended a hose to the valve stem atop the modified desiccant can. Then, in a small hole he had bored in the lead cable sleeve he inserted the L-shaped section of copper tubing and turned on the gas. It worked. In a relatively short time, dampness had disappeared.

The standardized "B Desiccant Injector" used so successfully by Bell cable maintenance men today is the result of Andy Smith's job pride, ingenuity and patience.

New Safety Device Prevents Skidding

FOR THE FIRST TIME, a new automobile safety device offers every motorist a weapon against skidding on icy roads — the same type of skid-control used by commercial trucks and busses for years.

The latest weapon in the fight to check the nation's traffic slaughter — 38,000 killed, 1,350 injured in 1952 — is a road sander called the *Grip-King*. It deposits a layer of sharp, processed grit in the paths of rear wheels for instant traction and will prevent many of the accidents that until now have been unavoidable, according to the manufacturer, the Tenna-Lite Corp. of Chicago.

Traffic experts regard the new device as the greatest highway safety advance since the invention of 4-wheel brakes and claim it will effectively reduce winter accidents — usually doubled during this period.

The new safety appliance is operated electronically by a convenient switch on the steering post. (*See Fig.* 1) Valves concealed within the luggage compartment control a flow of grit to the rear wheels. For split-second traction to start, stop and control skidding, a driver flips the switch, the valves open, and the abrasive traction material is discharged in front of the rear wheels. Adequate grit supply can be easily maintained — an indicator light on dashboard signals the driver before replacement is needed.

The switch and luggage compartment units are easily installed, and extra bags of grit may be kept in the trunk. (*See Fig.* 2) The non-clogging discharge tubes are hidden by the fenders.

The basic principle of the sander has been road-tested for years on truck fleets, busses and railroads. Commercial records prove almost double braking power on glare ice.

FIG. 3 — Ingwersen switchboard tool cuts outer servings of switchboard cords.

Switchboard Tool Speeds Cord Repairs

THE SWITCHBOARD shown in *Fig.* 3 has proved in as an efficient tool for cutting the outer servings of telephone switchboard cords, for maintenance and repair of such cords.

Functions of the tool are as follows:

A metal reamer is molded into the plastic just forward of the large finger hole for the purpose of reaming and smoothing brass connector plugs. The plug is inserted and rotated in this reamer hole. After removal of the fibre sleeve from the connector plug, the slot at the end of the tool is used to grip and unscrew the brass fitting from the braided cord. (This slot is also used in screwing the plug back onto the cord.)

Cutting or stripping of the braided insulation cord from the three inside wires is done by means of a cutting blade, the edge of which is at the base of the large slot in the top side of the tool. The blade may be adjusted by turning the plastic screw on the side after first loosening four metal holding screws. To cut the braided cord, the gate is lifted and the cord inserted in this slot. The gate is then closed, and the tool twirled on the finger.

Individual wires may be stripped or cut by inserting them through a smaller slot, also served by the blade. The blade is easily replaced when it becomes dulled.

This tool is produced by rapid injection molding and is designed with

only four plastic parts to be assembled. Tenite has good dimensional stability and can be molded to close tolerances for true fit of these parts. Tenite was chosen for reasons of its durability under rigid requirements specifying that such a tool be able to cut 10,000 cords and remove and replace 10,000 plugs without undue wear.

New Draftsman's Helper

JOHNSON Research Corp. of Bethpage, N.Y., has come up with a new helper for engineers and draftsmen in its line of improved Title Blocks, Bill of Materials, Change Blocks, Technical Symbols, etc. for use on drawings and tracings. Known as "Transeals," the units are printed on a thin transparent printed plastic sheet with a pressure-sensitive adhesive coating that is protected by a removal waxed paper sheet. "Transeals" eliminate rubber stamps and the time-consuming hand lettering, symbol drawing and ruling usually required for engineering drawings on paper, vellum, or cloth. Furnished for application to either the reverse side or the face of drawings, "Transeals" are easily applied by slight hand pressure without the use of heat, and can be conveniently stored for future use.

Watch Your Truck For "Fire Spots"

FIRE IN YOUR truck is to be as much avoided as a head-on collision. Uncontrolled, it can take as great a toll in lives, equipment and cargo as any highway mishap. Engineers have battled the causes of fire for years. Their advances, as far as scientific fire prevention is concerned, have been remarkably successful. Yet this success has not removed fire's most vicious ally—human carelessness!

Fortunately, fire is one unwelcome guest that often alerts us to its possible arrival. Fortunately, too, a few simple precautions on the part of the driver of a truck can go a long way in helping reduce the tremendous damage caused every year—every day—by fire.

Look, for example, at the wires and wiring under the hood of your truck. If someone has taken up slack in a wire by wrapping it around the breather pipe, steering column, or some other "handy" part, be thankful you've dodged fire this long. A good mechanic is seldom guilty of such carelessness, but it happens.

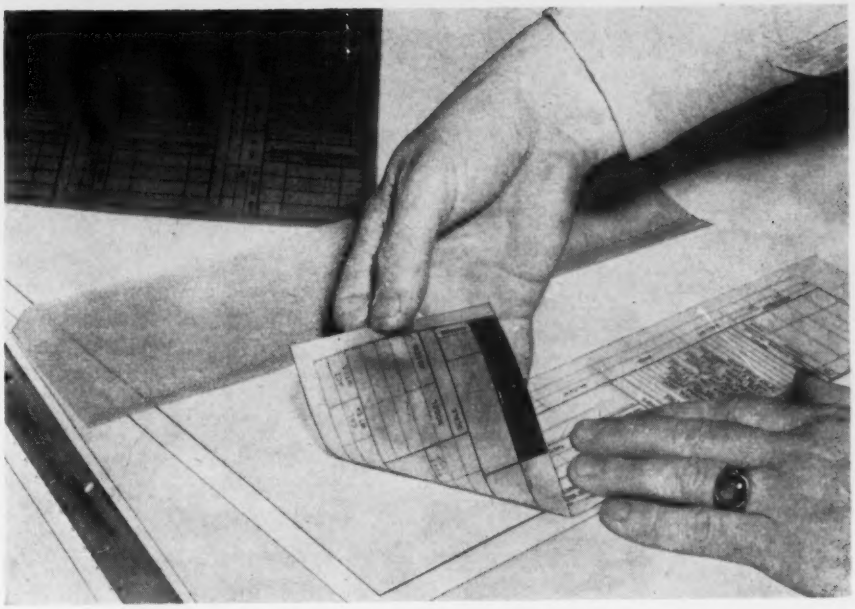

Fig. 4 — "Transeals" eliminate rubber stamps and time consuming hand lettering, symbol drawing and ruling usually required for drawings.

The use of alcohol as an antifreeze is another possible fire hazard. If you don't drain your radiator for hot-weather operation, alcohol can become dynamite. Suppose the radiator overflow tube develops a leak. Highly combustible alcohol fumes can be ignited by the hot exhaust, and the flames can be whipped by your fan back through cab and body.

Loose gas lines present fire danger from leaking gas or fumes. Make certain carburetor connections are tight. The gas line from the frame of the truck to the fuel pump is also a trouble spot. A loose gas line may rub against the frame, and possibly wear through. On the other hand, if a gas line has no play at all, it may snap from a strong vibrational tug of the engine. Watch gas lines closely and be sure they fit properly. It's a good policy, too, to check them regularly.

An outbreak of blown fuses is another indication of possible fire danger. Fuses are merely safety valves. They blow when electrical overloads are thrust on them. A truck that becomes fuse-hungry is a signal of possible trouble . . . trouble that spells fire!

Finally, be prepared to combat fire as soon as it occurs. Clamp a good fire extinguisher in your cab. Inspect and refill it regularly. Be sure it can extinguish gasoline, grease, oil-paint and electrical flames. Be fire-sighted!

Air Conditioning Used To Combat Equipment Problem

USE OF AIR conditioning is being recognized as one of the methods of combatting the problem of heat generated by communications equipment.

This method was explained recently in a technical paper presented by J. A. Coy, Bell Telephone Laboratories, Inc., engineer, at the Pacific General Meeting of the American Institute of Electrical Engineers at the Hotel Vancouver.

Mr. Bell, in his paper, entitled "Heat Dissipation from Toll Transmission Equipment," said that more tubes are being used in this equipment which is being made smaller, thus posing a new heat problem.

Although the use of transistors — tiny devices that replace vacuum tubes in some instances — will reduce heat and space problems — they must be kept relatively cool — 140 degrees Fahrenheit — and increased demand for toll service and automatic switching tend to increase the total amount of heat that must be dissipated.

Refrigerative air conditioning is one approach to the problem, he said. He recommended partitioning off or enclosing heat generating equipment in separate rooms.

"Where general air conditioning is available this can be drawn off for part of the cooling required and suptype unit air conditioners with the plemented as needed by packaged partitioned space," he said. "Where

Please Turn To Page 78

One measure of a job

It's the length of time a person stays in it. People naturally stay longer in jobs they like. And the length-of-service record in telephone companies is unique. Such a record is all-important to telephone customers. With good jobs attracting good people, the telephone company can give good service. The advertisement across the page tells millions of readers of September magazines of the job satisfaction steady-going people find in telephone work.

O'SULLIVANS AT HOME. Clarence M. O'Sullivan, construction foreman with 34 years' experience; daughter-in-law Marilyn, clerical assistant for 5 years, and Mr. O'Sullivan's sons: Don, an installer with 7 years' service, and Clarence C., cable repairman with 13 years' service.

Fifty-nine Years of Telephone Service

FATHER, TWO SONS AND DAUGHTER-IN-LAW ALL WORK FOR THE TELEPHONE COMPANY

TELEPHONE MAN OF 1970. Clarence C. O'Sullivan's young son, Mike, likes to pretend he's a "telephone man." And he will be when he grows up, if he follows in his family's footsteps.

When Clarence M. O'Sullivan started to work for the telephone company, back in 1919, he started a family tradition. Since then two sons and a daughter-in-law have also decided on telephone careers. They have a total of fifty-nine years' service.

A recent U. S. Government survey gives some interesting figures on the length of time men and women have served with their present employers.

By comparison, the length of service for women in the Bell System is twice the average for women in other industries. For telephone men it is nearly three times the average for other industries.

This longer length of service, which indicates job satisfaction, also has a value to the telephone user. It helps us give better service to everyone.

Bell Telephone System

The Model RG is now available in 1,500- and 3,000-lb. capacities — other sizes will follow.

Advanced Guard for a New, Advanced Line

Here is a completely new ratchet lever hoist designed to bring you added safety and convenience. The Model RG incorporates the time-proved ratchet and pawl principle originated by Coffing — makes it hold positively at all times — no friction-type brake to slip or freeze—chain is free wheeling when not under load.

Many New Advantages

COIL CHAIN Swings or wraps in any direction for greater flexibility in use.

SIX OPERATING POSITIONS Handle operates in any position, works on full or partial strokes — for ease of handling in close quarters. Safety stops prevent spinning of handle.

BIG SAFETY FACTOR For your protection the Model RG has 100 percent overload safety factor, although the warranty covers only up to rated capacity. "Safety-valve" handle bends at point of maximum safe overload.

SIMPLE TO SERVICE The Model RG may be completely disassembled with only a screwdriver for easy servicing. Not necessary to return it to the factory for repairs.

Find out more about the hoist that gives you greater convenience and safety in all lifting, pulling, stretching. Write for Bulletin U9R.

COFFING HOIST COMPANY
Danville, Illinois

Quik-Lift Electric Hoists • Hoist-Alls • Load Binders
Mighty-Midget Pullers • Spur-Geared Hoists
Differential Chain Hoists • I-Beam Trolleys

Sold by Industrial Distributors everywhere

general air conditioning is not available packaged type air-conditioners can be used for the full duty in the room with the heat producing equipment. Where the primary objective is the removal of heat generated by the equipment, the unit conditioners can be operated with only thermostatic control, since in this case humidity control is not necessary."

A "rather vivid illustration" of the amount of heat generated by some communications equipment is the 120 N Carrier Terminals, which can easily be contained in a room 20 by 30 feet. These will release 42 kilowatts of energy, "equal to that obtained from the combustion of 720 gallons of fuel oil per month, enough to heat two ordinary houses in midwinter," he said.

Several installations are now approaching this size and space is being reserved for as many as 300 terminals in one room, Mr. Coy said.

Self-Service Stockrooms Speed Service, Cut Expense

IF YOU HAVE stood in line waiting your turn at the stockroom window, wasting precious minutes to obtain materials or tools needed for a "rush" repair job, you probably wondered why some system could not be devised that would speed up stockroom deliveries. I know that question has popped into my mind many times, and it was only recently that we discovered a workable solution in a system built around the use of self-service stockrooms.

Self-service stockrooms first came into being during the war years when manpower was scarce, and among the first large self-service stockrooms to be operated and successfully controlled in an industrial organization was one operated by the Bell Telephone Laboratories. At the time it was started in 1941, the self-service stockroom was considered an innovation in the field of stockroom operation.

But since the self-service principle was adopted, the system has proved its worth in economy of operation and service. In 1945, the Laboratories reported that the system was resulting in savings of about $50,000 per year. This savings was partly due to a reduction in the number of stockkeepers that were needed for efficient filling of orders for tools, materials and supplies.

In addition to the savings, other benefits derived from the system are:

(1) Proper display of stock permits proper selection of the item needed for the job, and also facilitates subsitutions when an item is temporarily out of stock.
(2) The waiting feature is almost completely eliminated.
(3) Fewer stock discrepancies.

In appearance the self-service stockroom closely approaches the appearance of a modern store, with all merchandise, tools and supplies, properly departmentized and displayed on steel counters. In operation, the employee in need of stockroom items, merely makes his choice, fills out his own ticket recording quantity, item description and job or department which will use the item.

Select The Bit To Fit The Job

THE NEW "SELECTO" three-in-one Screw Driver (*Fig.* 6) with its patented magazine-loading feature, which permits split-second changes of one bit to another is proving itself as a useful telephone tool.

The three bits, two of which are in the handle, permit its use for round-head, flat-head and Phillips-head screws. Bits are made of high quality steel, will not chip or break and are rust-proofed. Handle is non-breakable of amber-colored plastic and is fire-safe. All parts are precision made to a tolerance of .001″.

You'll find this tool handy where crosspoint or slotted screws are used. The Selecto Screw Driver, with its No. 2 Phillips, 9/32″ flat and 3/16″ flat bits, is the perfect tool for the job.

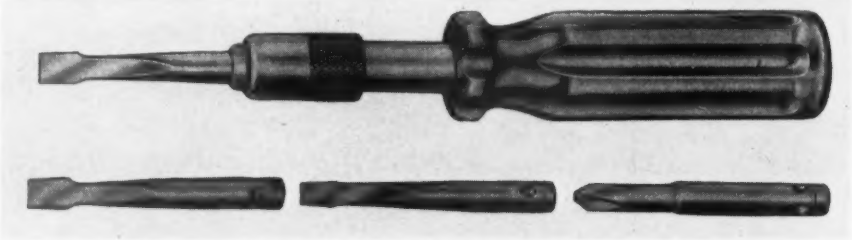

FIG. 6 — Selecto 3-in-1 screwdriver permits fast bit changes.

FIGURE ONE — Outdoor booth at drive-in restaurant.

The Post War Trend TO OUTDOOR TELEPHONE BOOTHS

By JAMES BOYD

FIGURE TWO — Outdoor booths on highway.

OUTDOOR telephone booths are springing up like the proverbial mushrooms along main highways, at street corners, in housing developments, drive-in restaurants, trailer camps, air ports, service stations, and other locations. *Figures* 4, 5 *and* 6 show three types of outdoor booths and *Figures* 1, 2 *and* 3, their typical locations.

At the start of the post war period, only a few outdoor booths were in existence, chiefly in the East. They are now spreading throughout the country and are proving to be a highly profitable source of revenue to telephone companies.

The popularity of outdoor booths is attributed to their accessibility and convenience, the use of eye-catching signs to mark their location, and the fact that they can be used at any time, day or night. Studies made by one telephone company indicate that outdoor booths bring in, on the average, 50 per cent more revenue than indoor booths. This company also reports that the most popular locations in that order are near truck stops, in down town locations, at bus or streetcar "turn-arounds," at drive-ins, and in neighborhood locations.

The telephone booths illustrated by *Figures* 4 *and* 6 are manufactured by the Sherron Metallic Corp., Brooklyn, N. Y., and are stated by the manufacturer to have the following features:

(1) The design of the booth follows a plain and functional straight line theme, consistent with modern architecture. Rigid fireproof steel construction embraces the use of interlocking vertical joints, eliminating the use of exposed screws.

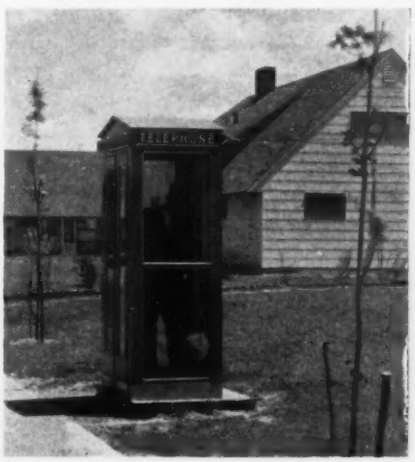

FIGURE THREE — Outdoor booth at housing development.

(2) The equal-leaf folding door assures balance and symmetry of appearance. Stainless steel track and phenolic guide shoe insure easy operation.

(3) These booths are regularly equipped with wire glass half-panels in the upper and lower sections of the sides and back. These are all of uniform size and can be interchanged or replaced with opaque steel-clad solid half-panels. Non-shatterable safety glass can be furnished in place of the wire glass. This use of this material also offers the interesting possibilities of including signs, distinctive emblems or other advertising or instructive matter laminated between the plys of the glass.

(4) The booths are equipped with the adjustable shelf and backboard assembly mounted on a tubular standard through which the telephone wires pass from the top of the booth completely concealed. The shelf can be set at either standing or sitting position without drilling holes or defacing walls of booth. The backboard will accommodate a pay station or handset telephone. The bellbox mounting bracket under shelf is hinged for convenience in wiring.

(5) A lighting fixture of special

FIGURE FOUR — Sherron outdoor booth with directory extension.

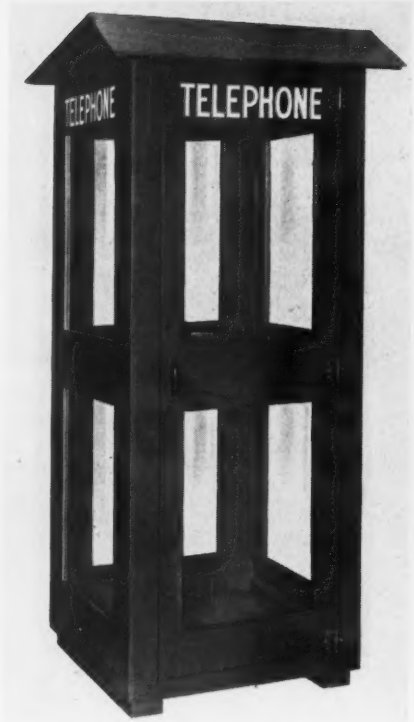

FIGURE FIVE — Churchill outdoor telephone booth.

FIGURE SIX — Sherron Model 40-S, Type 1, Outdoor telephone booth.

design, equipped with a self-closing lens, and located flush with the ceiling, provides illumination on the telephone instrument. A concealed automatic door switch operates the light when door is closed. Lights and louvers on the booths are sealed and screened against infiltration of insects.

(6) The booths have floors of rolled steel cleated safety plate. Floor and base construction insures strength and rigidity to the booth and prevents wear on the floor of the premises where installed.

(7) The booths are finished in baked synthetic enamels of standard colors.

(8) A linoleum covered steel seat of new design can be readily installed without drilling holes in the booth. The seat is mounted on an arched tubular support from the corner of the base, leaving the floor of the booth entirely unobstructed.

(9) Adequate ventilation is provided by a compact ventilating unit, located and concealed between the ceiling and roof, which furnishes a circulation of air throughout the booth. The ventilating unit is controlled by the automatic door switch in conjunction with the light.

(10) A hinged ceiling assembly is designed for incorporation in booths to be installed in recesses, to allow all wiring and servicing to be performed from inside the booth itself. A hinged section in the ceiling is provided to gain access to the electric light, ventilating unit, door switch, and the upper end of the tubular standard. When closed, the hinged section is safeguarded by special latches in addition to a safety catch.

(11) An inside directory unit provides protected directory service at outdoor paystations, as shown in *Figure* 4. The directories are securely mounted in a directory fastener on a sloping shelf, making them convenient to read by the occupant. At the same time, their location outside the confines of the booth keeps them out of the way. The directory unit is interchangeable as a unit with any of the upper glass panels in the outdoor booth and may be installed on either side or on the back.

(12) The booth can be equipped with the door closing device which is a spring type actuated by a strong stainless steel spring. An adjustment is provided to set the desired tension for controlling the speed and travel of the door in closing.

(13) Many distinctive types of signs are at present being used in connection with outdoor telephone booths.

The Churchill, Series #200, outdoor telephone booth (shown in *Figure* 5) size 30″ x 30″ x 86″, is constructed of California Redwood. According to the Churchill Cabinet Co., Chicago, the material is of the finest wood that can be used to prevent deterioration by the weather elements, decay, or termites. Many of the finest homes which have withstood the ravages of time for a great number of years are constructed of California Redwood and have proven to be impervious to weather conditions. Quarter inch plate glass, wire re-inforced, is used throughout. The name "Telephone" is prominently displayed on the front and two sides of the booth; the material used is waterproof, outdoor paint. The roof is manufactured in a manner such as house roofs and has the finest roofing paper applied thereon. The floor is made of sturdy oak and is treated to prevent decay. The booth can be easily anchored. The booth weighs approximately 450 pounds.

Each booth has a full size writing shelf and ample provision for mounting pay stations is provided.

The standard color of the outdoor booth is slate grey. Special colors can be had at an additional cost.

Before introducing the Churchill No. 200 outdoor booth to the trade in November, 1952, actual outdoor tests were made over a period of two years.—THE END.

outdoor
AUTELCO
PAYSTATIONS
PAY...right around the clock

YOU CAN GET 10-cent AUTELCO PAY-STATIONS NOW. Send for Catalog 4078 showing our full line plus kits for conversion to the 10-cent rate.

"Miles from Nowhere"
they'll beat a path to your PAYSTATIONS!

A "better mousetrap" won't earn a boxful of coins—but an outdoor paystation on the highway **will!** Put plenty of Autelco Paystations in modern booths at opportune spots along your well-traveled roads. Advertise them with BIG, colorful signs. You'll spend many a happy moment emptying the full coin boxes—and many a kind wish will be sent your way by people who appreciate your thoughtfulness!

Product of the Telephone Specialty Department of

AUTOMATIC ELECTRIC

Originators and Developers of the Strowger Step-by-Step "Director" for Register-Sender-Translator Operation . . . Machine Switching Automatic Dial Systems
Makers of Telephone, Signaling and Communication Apparatus . . Electrical Engineers, Designers and Consultants

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1033 West Van Buren Street, Chicago 7, U. S. A.

Small Company Talk

By BILL CORMAN

Co-op Activities May Create New Situations And New Problems

"The introduction of the co-op as a factor in the telephone industry is an event that requires thought and consideration — especially by small companies.

HI, NEIGHBOR! Is there an REA Telephone Co-op next door to you? Are *you* the manager of an REA co-op, with some small Independents nearby? Whichever you are, you have your problems, don't you? You are both Independent, about the only difference being that one of you is privately financed and the other is financed publicly, and that one of you pays income tax and the other doesn't.

Since there are so many more of the private Independents than there are co-ops, this is written from the viewpoint of the privately owned companies, but it should be remembered that the knife cuts both ways. The problems of one are also the problems of the other, and the problems of both are, in turn, the problems of the Bell System. The principal purpose of all of us is to furnish telephone service. And none of us can furnish a completely satisfactory grade of service without connection to and cooperation from the others.

Co-ops, of course, we have long had in the telephone business. The principal difference between the old ones and the new ones is that the new (REA) co-ops are partly (largely, in fact) financed by the government —the old ones were completely financed by the membership. The point is that co-ops are not something we talk about that might be here—they are here; their existence is an established fact, and a rather large fact at that.

We have long had two factors in the Telephone Industry, the Bell and the Independents — there is no doubt that we now have three. For while by time-honored definition of the word Independent (not owned or controlled by the Bell System) fits both existing Independents and REA co-ops, the conditions surrounding the conception, operation, and existence of the co-op is rather different from the conditions surrounding the existing Independents.

The introduction of this third factor into the industry is an event that needs some thought and consideration, and especially by our small companies.

There are some generalizations we can make about the co-ops, not all true in all cases, but mostly true in most cases. They are, on the average, considerably larger than we are. Most of them, when they complete their construction, will have almost all new, dial plant. Their average cost per station will be probably from two to five times our average cost. Their rates per subscriber are much higher than ours. They will have a constant source of financing for additions and improvements — in any list of loans, notice how many "supplemental" loans there have been. They will start off with "Good plant — good service — good rates" and if they can attract the proper management, they will keep on having those things. They *must* strive toward area coverage — it's in their mortgage. They *must* place emphasis on rural phones — that's in the law. They *must* have towns to go along with their rural territories — not one rural territory out of a hundred will, by itself, prove feasible — and they are supposed to be limited by law to the smaller towns. There are other generalizations we could make, but let's look at these for a while.

"High Station Investment"

ONE OF THE main features of the REA co-ops is their high per station investment. $500 per station is not at all unusual. No matter what they call it, unless an organization sets up some kind of depreciation as an operating expense to be recovered from subscribers, it is eating away its own flesh and bone.

So we start with from 3½ to 4% depreciation. Interest is 2%. Repayment on the loan (which private companies would have to call "profit") is another 3% approximately, or at least something over 2½%. So we have, say 3¾% for depreciation, 2% for interest, and 2¾% for profit — that is a total of 8½%, and

8½% of $500 is $42.50 per year, or $3.54 per month per telephone just for those listed items. And we have not yet mentioned maintenance, traffic, commercial or general expenses.

In our own company, these four items of expense run something in the neighborhood of $31.80 per station per year, or $2.65 per month per station, and comparisons tell us that is a rather low figure. At any rate $3.54 plus $2.65 amounts to $6.19 a month, or $74.28 per station per year necessary revenue.

So the reason the co-ops have their high subscriber rates is evident; they are necessary to support the plant investment. Furthermore, commissions have been approving these high rates, which would indicate that commissions are having it impressed upon them that today's high cost of plant requires higher subscriber rates. Along this line, we can give a word of thanks to the co-ops.

"Service Comparisons"

WHILE IT DOES not necessarily follow that a high cost per station means a good plant, still that is the general conclusion that may be drawn if the money has been well spent. So, generally, we may assume that this high cost is producing a high grade telephone plant, over which a high grade of service may be furnished. Where such plants are even within a day's drive, their service will be compared with ours. We, here in our company, get reports on service from our subscribers, and from people coming through, comparing the service we give with almost every other exchange in Southwest Alabama.

In short, your service will be compared with that of the new co-op, and even if your rates are much lower, *that* will be forgotten in the comparison. This factor, however, I do not wish to be placed on a par with the rate discussion just above, for there have always been differences in the service furnished by different companies. Never the less, this will be one more source of pressure for you to better your grade of service.

Just one short example of this. If we can gauge at all by what the electric co-ops have done, the telephone co-ops will have nice, functional, good-looking central offices. Now almost every town that I know has a lot of civic pride, and if one of your rival towns has a nice looking central office while you have a shabby one, there will be pressure.

There will be another area of pressure. By the law and by their mortgage, the co-ops must place emphasis on installing rural telephones. Farm folks talk when they get together, probably more than city folks, and the fact that a large share of the farmers in the next county have telephones will soon spread to your county. Even without the co-ops, this pressure has gradually been spreading, and the co-ops will add more fuel to the fire. And when you start getting into it, you may be surprised to find that the folks in town will ask you just about as often as the folks in the country when you are going to build into a certain rural area. Town folks have farm kinfolks, and city businesses have farm customers, and when it begins to grow, you'll get pressure from sources you never even dreamed were interested in rural telephones.

Operating Areas

ONE OF THE facts of co-op existence that is disturbing to more small companies than perhaps any other is the existing, and will be the continuing, demand of co-ops for town and city areas in which to operate. Of course, to those little companies who want to sell out, the co-ops are proving to be extremely well-heeled purchasers, but if the man wants to sell and the co-op wants to buy at those prices, there would seem to be little that anyone could do about it, except to meet or better the co-op's price.

But the problem comes with those companies that do not want to sell. If the co-ops so decide in certain given cases, they can probably build up almost intolerable pressures until the owner is forced to sell, and the co-op management may engage in such tactics on the theory that the end justifies the means. But this is poor telephone philosophy, as the Bell and Independents proved to each other a generation ago.

There are dozens of ways in which mutually beneficial toll settlements, extended area service, CDO operation provided by another company, etc., can be used to accomplish the same purpose.

The co-ops could do themselves

Please Turn To Page 84

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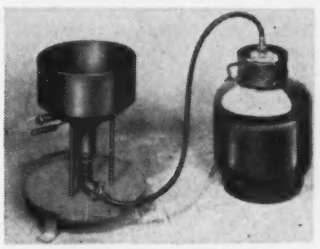

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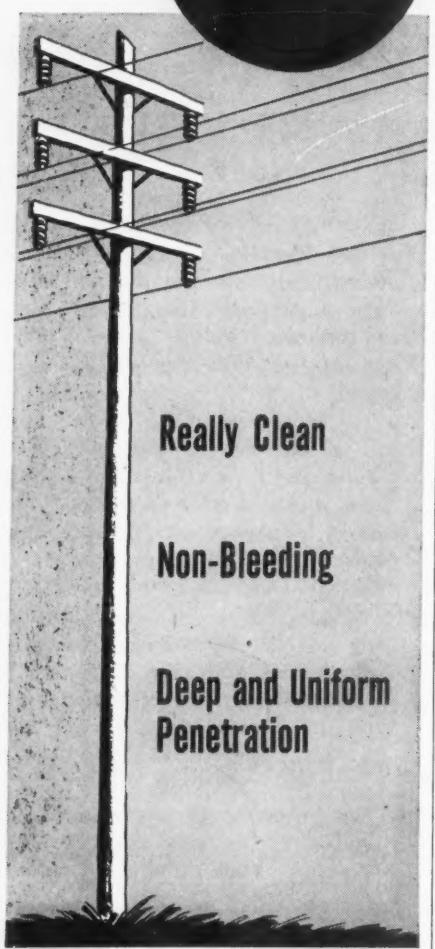

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and the industry no worse harm than to engage in a rough-shod, no-holds-barred, battle royal for enforced acquisition of unwilling telephone properties.

Never the less, the need of co-ops for towns exists, and where there is a desired property that is not for sale, there exists a problem. The electrical co-ops in the early days went on the theory that since they were government financed, they were therefore all-powerful and could do no wrong. They rendered useless thousands of miles of grounded telephone circuits; they usurped both public and private rights of way (and are still suffering the consequences in many places); They succeeded in giving the word "co-op" a bitter taste in the mouth of almost every private business concern and individual.

In many cases the electric co-ops have begun programs designed to overcome those early abusive tactics, but the bad taste is far from being all gone, and the telephone co-ops will inherit at least a portion of this general distaste. To engage in tactics similar to those of the early power co-ops would add more bitter dreggs to the potion.

The telephone co-ops would be wise indeed to heed the clear lessons available to them from the past history of the telephone industry and of the power cooperatives.

Washington Attitude Changing

THERE SEEMS to be, moreover, a different attitude in Washington as to whether or not government financed projects can do no harm — that their ends justify their means. Some people, in and out of Washington, are beginning to get the (*fantastic?*) notion that co-ops are not non-profit after all, but are simply devices for engaging in business without paying income taxes. I repeat, for the sake of themselves and of the telephone industry as a whole, the REA telephone co-ops need to be guided by all the experience available to them.

We existing companies can do much toward furthering the amicable existence of the co-ops if we will. The knife, as mentioned earlier, cuts both ways. Co-existing and closely adjacent telephone organizations can neither provide a satisfactory telephone service if they are at each other's throats. But cooperation works both ways — you cannot cooperate with someone who will not cooperate with you. The existing Independents, if you choose to look at it this way, are now in approximately the same relative position to the REA co-ops, as the Bell System has been for a number of years to the Independents. We have, it would seem, a new relative position and capacity to assume, and we have a chance also to heed the lessons of telephone history, and from the other side of the fence.

The Employe Problem

ONE MORE thing we need to consider about this introduction of a third factor into the telephone picture is the cooperative employe situation, with especial emphasis on where they will come from. You do not have to delve too deeply to discover that existing Independent companies are about the best source from which these new co-ops can draw personnel.

A number of instances have reached my ears where they have hired employes away from Independent companies. As time goes on it may be expected that the co-ops will get new employes in the same way the Bell and we now get ours — we hire inexperienced people and train them. But at the outset, there will be no experienced personnel in the co-op organization, and they will have to get them from somewhere.

Again, it seems to me, our offer of cooperation and aid may well circumvent a tussle, but another factor is the pay scale of our employes. If our pay scales are not up to par, and co-op's are, I do not see how we can complain because an employe takes advantage of the higher pay. Of course, even where a wage is adequate and fair, it is still possible for someone else to better that figure simply because they have to have that employe's qualifications, and this may produce some hardships. But in the long run, the law of supply and demand will begin to work, and in the meantime, it still seems to me that we might avoid considerable such harships by offering the co-ops the same kind of cooperation that has long existed between the present companies.

In our company, for example, we have taken advantage of the training program of other companies to include some of our own personnel, with

mutual advantage to all. And we have, in turn, had personnel from many other companies visit with us to learn something of our ways.

Association Membership

ANOTHER facet of this picture is one which has produced heated arguments from one coast to another — the question of co-op membership in Independent Associations. From what has already been said, it can probably be inferred that my personal vote on the matter is to include them in. By our closest conception of the term "Independent," they are Independent telephone organizations. Their purpose in life is the same as ours — to furnish telephone service. I think they belong in the Independent ranks.

From what I have written in the past and, indeed, from this present article, I believe my position is known, but if not, I will try to state it clearly. I am anti-socialist to the tips of my rather long fingers and toes — I do not believe government ownership of an organization or industry can provide as much good for as many people as can private enterprise — I believe the individual is the paramount conception over all earthly matters and that individual opportunity and initiative and production are the keystones of progress.

I cannot see that believing as I have stated, and also believing that the telephone co-ops should be members of our Independent Associations, are contradictory beliefs. Without going into all the long and strong arguments on the subject, let me merely say that I believe we would be better off to have the co-ops within our associations than on the outside.

The co-ops are (mostly) furnishing service to subscribers who did not have it before. Whether the existing Independents, and the Bell, *could* have served them, is now beside the point. The point is that for some reason — didn't want to, couldn't afford to, didn't get around to — we did not serve them, and now the co-ops have Whether we could have done it better or cheaper is *now* also beside the point. What we have is an accomplished fact to deal with, not a future possibility to argue about.

One more factor of the existence of the co-ops, I feel should be set forth, because the fact that the sit-

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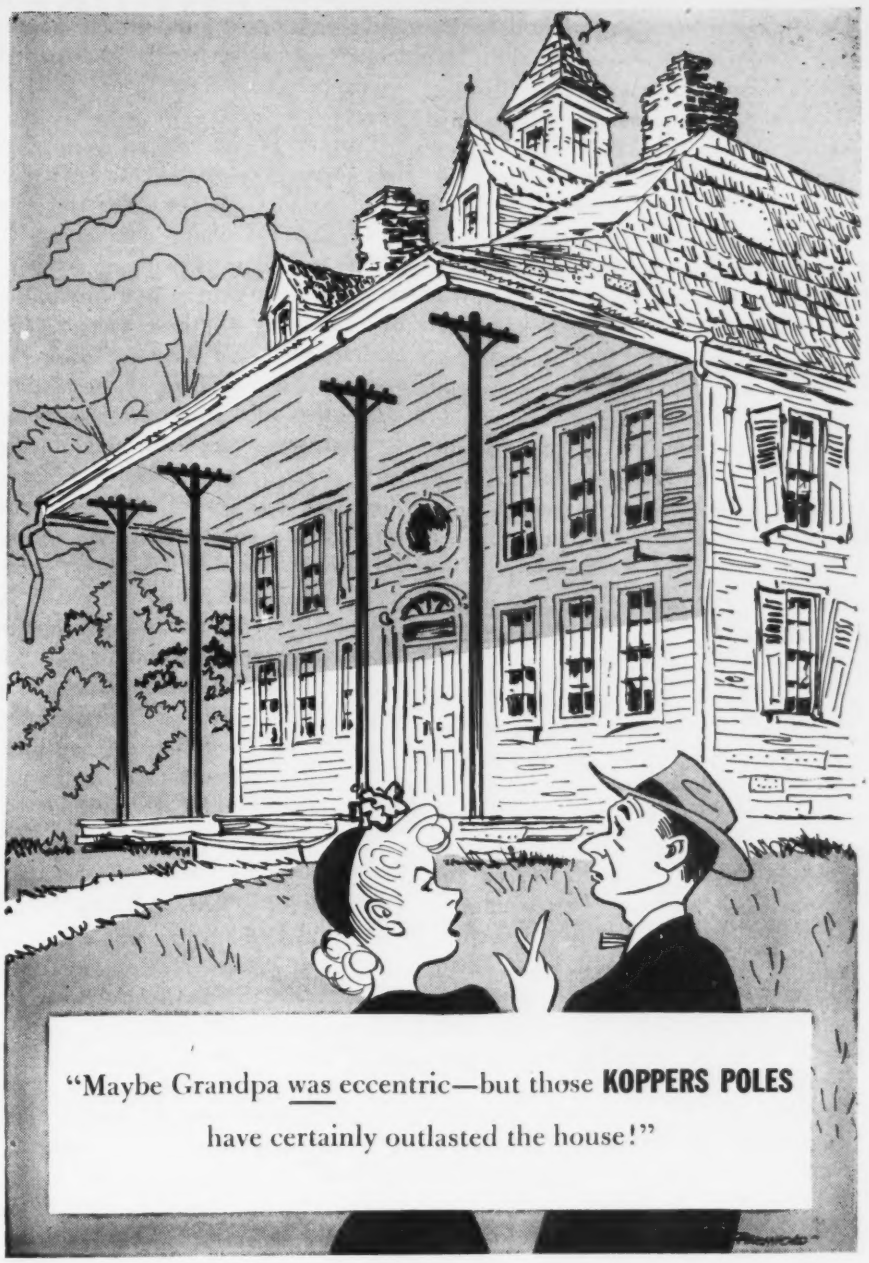

● Grandpa was pretty smart, after all. He *knew* that creosoted wood far outlasts ordinary wood.

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uation does exist is, or might be in the future, important.

REA co-ops are subsidized by the Federal Government. It can be no more bluntly or plainly stated than that. In the first place, the money which is loaned is Federal money, and it is loaned under equity requirements which no private investor that I have ever heard about would agree to. Thus the government is taking a risk which few, if any, private investors would take. In the second place, the interest rate is 2%, which is very low considering the risk involved, and which is less than it costs the Federal Government to borrow that same money. It may be an indirect subsidy, but subsidy it is never the less.

Well, so what — why is that important? For the past several years, and at present, my personal reaction is also "so what." So what if the REA co-ops are subsidized, so are a lot of other things — schools, roads, farm products, veterans, foreign countries and many other things are also subsidized in one form or another, and there were more congressmen who thought all of them, including REA co-ops, were right, than there were who thought them wrong.

So, in the past few years, and right now, it's not particularly important. The important thing is that it looks like the "pendulum is swinging in the other direction," to use a vague political phrase you hear often now-a-days. Subsidies, government aid, government projects — all of these have reached their present heights during what might be called the Roosevelt-Truman era (we Southerners still object to it being called a "Democratic" era).

The talk is and the indications are that the momentum of such ideas is slowing, and may even stop and then reverse. I even read articles today about the idea of the government selling back to private enterprise — an unthinkable subject five or 10 or 15 years ago — such things as power plants and barge lines and fertilizer factories, etc.

In short, there well may be coming a time when cooperatives will have to pay more interest (on supplemental loans; I believe their present contracts are valid at the present 2% rate for the life of the contract). The time may well be coming when their status as a "non-profit" organization may be seriously threatened to where they may have to pay Income Taxes.

Further, the ad valorem taxes paid by most co-ops are hardly on a par with the ad valorem taxes paid by power and telephone companies.

The pendulum is swinging — there is swinging — there is a possibility of change in all these factors, and each change will hurt the co-op — reduce its ability to repay, necessitate still higher subscriber rates, and such. By that time, co-ops will undoubtedly serve a rather large number of families and businesses with telephone service, and so it will be an industry problem as well as a co-op problem. We are deep into conjecture as it is, and there is not too much point in carrying the guess on and on. But it may well create situations which will bear watching and some study, especially by co-op management now, and by the entire industry in the not too distant future. —THE END.

New Booklet Tells Mt. Vernon, Ohio, Story

MAY 22, 1953 WAS a tragic day for the Mount Vernon (Ohio) Telephone Corp. At 2:30 P.M. fire, from an unknown cause broke out on the third floor of the telephone building and before the flames had been brought under control, the Mt. Vernon telephone system had been destroyed.

The story of that disaster and the inspiring story of an Independent Telephone company at work have been ably presented by George B. Quatman and his sons, Frank and George, Jr., in a new booklet titled *"The Big Story of Mt. Vernon, Ohio."*

Mr. Quatman, who is presendent and general manager of the Mt. Vernon Telephone Corp., and his sons. Frank and George, have capably written the Mt. Vernon story, telling by text and photographs the history of the company, its plans, its hopes and the heroic efforts of employes to restore communication.

According to Mr. Quatman, copies of the beautifully printed, 24-page booklet are available to members of the telephone industry. Copies may be obtained by addressing Mr. George B. Quatman, president of The Telephone Service Co. of Ohio, Lima, Ohio.

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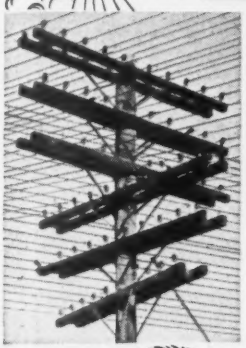

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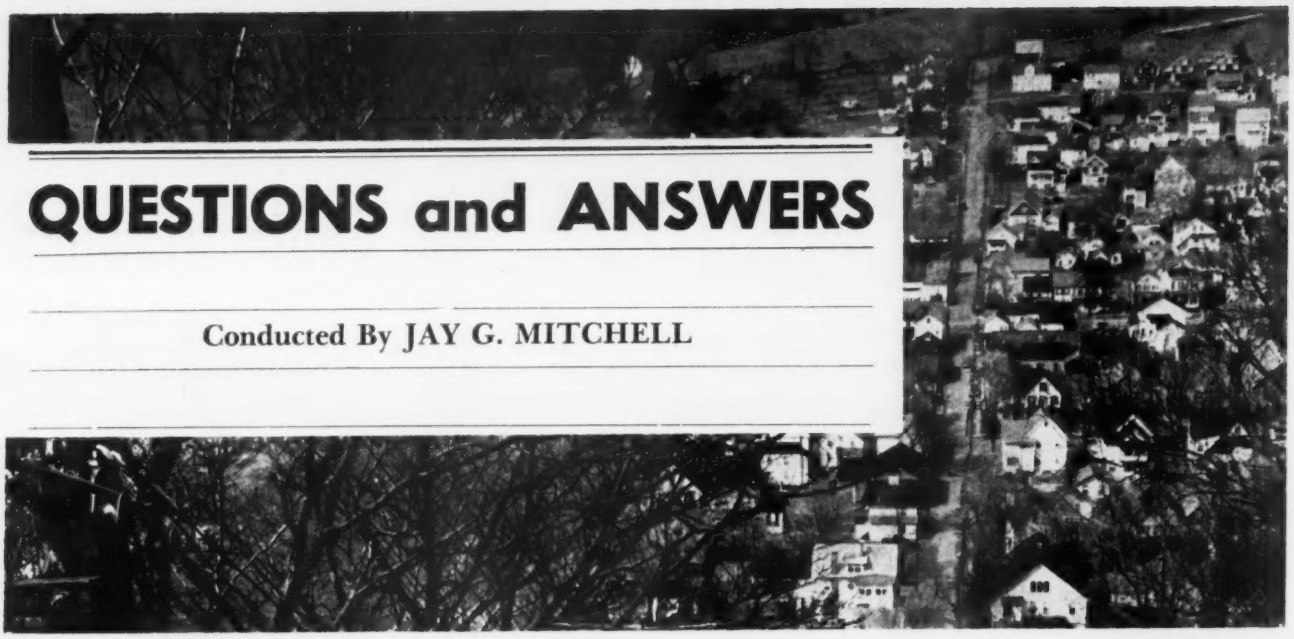


QUESTIONS and ANSWERS

Conducted By JAY G. MITCHELL

In this issue Mr. Mitchell discusses — (a) Some comments on the Decibel by a reader, and — (b) A literary puzzle explained.

Some Comments On The Decibel

QUESTION: — *I am sure that many read your various Engineering Information Experiences, but few tell you about having read them, or their views, but we keep reading. And now we just have to write you.*

The Db. is perhaps good, but the old TU hangs on in spite of, sort of sticking with EVA in place of Vars in the power game. Some of us will never get that triangle side clear in mind, too much slide rule.

Put the TU, Db. problem, instrument wise, and perhaps you can get the answer. The A. T. & T. use the 600 *Ohms load. So far all the multitesters and Db. meters use the* 500 *Ohm load. None of us know how to translate the conversion tables so in case the line talks and listens it is the Ear Meter that tells whether there is a* 600/900 *Ohm splice that is causing the noise.*

There are still a few lines with plus 15 *Db. induction and now and then patrolling the line and soldering the old joints will lower it to minus* 28 *Db. on the* 500 *Ohm meter. Come and visit us.*

ANSWER: — This interesting inquiry, which has been quoted in part only, strongly points out the importance of acquiring a thorough basic understanding, as a help in routine maintenance of telephone plant. The acquisition of such a basic understanding may involve considerable study and may call for some help but it will be well worth the time and effort spent in acquiring it.

The original inquiry, on which the present series is based, specified clearly that the multitester on which some help was asked as to the interpretation of the decibel calibration was one in which the readings were based upon a 500 Ohm loop. Later the same explanations will be given for the decibel calibration based upon the 600 Ohm loop but the electrical principles involved are precisely the same in both cases.

The evaluation of the transmission losses involved in telephone circuits and equipment was recognized many years ago to be of the greatest importance. Incidentally it is proper to mention in passing that the ancient transmission loss in one mile of standard cable is not entirely obsolete even now. In some advertising literature issued by one of the leading manufacturers of telephone equipment certain telephone repeating coils are offered with the inducement that their insertion in a telephone circuit will not cause more than a *definite* loss in transmission of a certain number of miles of standard cable. This old fashioned method of evaluating transmission losses in telephone communication was of great help in the development of improved forms of equipment but it was not accurate because it was a function, in any given set of circumstances, of the frequencies. For that and some other reasons the miles of Standard Cable method of evaluating transmission losses is to be remembered as an historical phenomenon only.

It is necessary, first of all, to fix firmly in mind that the decibel is a unit of Power *Ratios* and not of *Power*. With the additional concept firmly fixed in mind the decibel may be loosely used as a unit of *Power* only when it is rigidly related to a definite power level in the form of a ratio. This understanding is complicated somewhat by the fact that a number of socalled Zero Power Levels are in extended use. For this reason the question raised by this correspondent is of the utmost importance. An effort will be made, therefore, to set out the electrical principles involved in a meter of the type to which reference was made in the original inquiry, a loop of 500 Ohms, and then the application to

other Zero Power Levels will become simpler.

This will be clear when it is fully realized that the following Zero Power Levels are in use at this time in various parts of the electrical industry and in various areas. They are:

0.0010 watt
0.0060 watt
0.0125 watt

Although QUESTIONS AND ANSWERS has previously given the prescribed characteristics of one mile of standard cable in discussing outmoded methods of evaluating transmission losses it may be helpful, for comparative purposes, to repeat the specifications here which are:

In America		
Resistance	per loop mile	88.00 Ohms
Capacitance	per loop mile	1.054 Microfarads
Inductance	per loop mile	unspecified
Leakance	per loop mile	unspecified
Frenquency		unspecified

It is worthy of note, in this connection, that the decibel is closely approximate to the Mile of Standard Cable at a frequency of 800 cycles per second the Decibel being slightly higher. In order to establish an idea from daily experience of the approximate transmission loss in modern lead covered cable the following figures are sufficiently close to be useful in the preliminary rough design of cable plant.

The transmission loss in three gauges of lead covered cable is approximately:

	Frequencies		
	800	900	1000
24 Gauge, A.W.G. Dbs.	2.14	2.26	2.39
22 Gauge, A.W.G. Dbs.	1.74	1.80	1.90
19 Gauge, A.W.G. Dbs.	1.24	1.31	1.38

These are fair average values and should be employed only in a general way with due allowance for variations in individual cases from the average values given.

The underlying electrical theory of the Decibel meter and the Transmission Unit meter are the same but of course there is a difference in the electrical characteristics of these instruments. It will be found not at all difficult to understand the method of operation of them when the general idea on which their design rests is grasped. Tables and graphs will be set out for the 500 Ohm loop and the 600 Ohm loop instruments and it is hoped that these tables and graphs will contribute to the value of this method of evaluating the performance of communication plant by the practical maintenance man.

NEED HELP?

If you'd like Jay G. Mitchell's technical and helpful opinion on some question a postcard addressed to Mr. Mitchell will bring you a quick reply.

A Puzzle Explained

QUESTION: — *In the* FORTNIGHTLY TELEPHONE ENGINEER *just received we are at a loss to understand what is meant by the sentence beginning at the bottom of page* 35, *Column* 1 *which reads as follows. "In other words when the ratio (or proportion) of* input power *to* output power *is greater than* 1 (*expression* (1) reproduced from previous issue) *the device is said to show a loss and when the ratio (or proportion) of* input power *to* output power *is less than* 1 (*expression* (2) reproduced from previous issue) *the device is said to show a gain.*"

ANSWER: — You are not the only reader that has written in about this rather remarkable example of what is technically known as PRINTER'S PIE. The explanation is very simple. The words in the brackets were the instructions to the printer asking that expressions 1 and 2 as shown in the previous issue were to be reproduced again. These expressions were as follows:

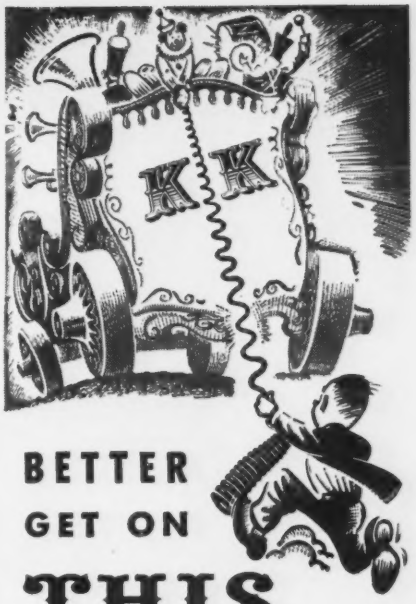
$$(1)\quad \frac{\text{Input Power}}{\text{Output Power}} = \frac{2}{1}$$

$$(2)\quad \frac{\text{Input Power}}{\text{Output Power}} = \frac{1}{2}$$

It is suggested that you make pen and ink corrections on your copy so that future misunderstanding may be avoided. Thank you and all the others who wrote in about this puzzling misprint. — THE END.

$55,000 Rate Hike For Georgia Company

THE GEORGIA Continental Telephone Co., which serves about 20 north and south Georgia counties, was granted a $55,000 rate increase recently by the Georgia Public Service Commission.



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Koiled Kords reduce maintenance costs, because Koiled Kords eliminate the kinking, dangling, tripping and catching that are the chief reasons for damage to equipment and breaks in service with old style cords. Neoprene outer jacket cannot fray. Koiled Kords are unharmed by perspiration, humidity, oil, water, grease or acid.

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By ROLAND DAVIS & FRED HENCK

AT&T Long Lines Dept. and Bell System companies file revisions in overtime charges and in night and Sunday rates . . . Significant judicial decision made in North Carolina.

REVISIONS IN overtime charges and in night and Sunday rates provided for in new tariffs filed with the Federal Communications Commission by the American Telephone & Telegraph Co., Long Lines Department and the Bell System companies and slated to go into effect on October 1. The revisions will increase customer billings for interstate long distance telephone service by about $66,000,000 annually and provide net earnings of $30,000,000 annually for the Bell System after taxes and the Independent telephone companies' share, the FCC pointed out in announcing the filing.

The new tariffs — the first step toward an increase in interstate long-distance telephone rates since 1919— would amount to less than eight per cent of interstate long-distance revenues and for telephone customers across the country the monthly charges would be increased by about $5,500,000, exclusive of federal excise taxes.

Of this amount, the Bell System companies would retain less than half — approximately $2,500,000 because of the effect of federal income, state and local taxes and payments to Independent telephone companies. The FCC announcement stated that "based upon the present volumes of telephone calls, the new rates will increase customer billings for interstate long-distance telephone service, presently at an $830,000,000 annual level exclusive of federal excise taxes, by about eight per cent.

The revisions provide for an increase of five cents for each minute of overtime on interstate calls at most distances beyond 24 miles. Revisions also provide for increases of five and 10 cents in the three-minute initial period rates for night and Sunday calls at most distances between 41 and 2300 miles. No increases were proposed in basic initial period daytime rates.

It is interesting to note that in contrast to these rate relief adjustments, 14 reductions in long-distance rates prior to 1947 have amounted to more than $100,000,000 annually to interstate long-distance telephone users, according to the FCC, at the times when the reductions were made effective. The reduction of more than $100,000,000 annually is certainly substantially greater now in the light of the tremendously increased usage of the telephone.

Stating that prompt relief is urgently needed, the AT&T pointed out to the FCC that interstate long-distance earnings have been declining over the period of recent years and are at a critically low level. The FCC said the Bell System companies cited "their interstate operating results for the 12-month period ended June 30, 1953, indicated a return of 4.83% on claimed net investment."

The serious decline in the earnings of interstate long-distance telephone services has been caused by the higher costs of furnishing service— including greatly increased wages, material costs and taxes—and expenses assigned to interstate telephone operations as a result of the "Charleston" plan of separations, the AT&T pointed out to the Commission.

The diminishing earnings of the interstate telephone services have been the subject of continuous and intensive consideration in numerous

Please Turn To Page 96

Plant NEWS NOTES

BIRTHDAY FOR TRANSISTOR

"TINY AS A SHOE-LACE TIP, yet capable of amplifying a voice to one hundred times its volume, the transistor has emerged from the Bell Laboratories," declared *Items* five years ago in announcing the invention of one of the most significant developments in the history of electronics.

With five years of extensive development under its belt, the transistor is now hard at work in the nationwide communications net work. Late last year, equipment using transistors to generate signaling tones was installed in dial switching equipment in Englewood, N.J., associated with the first installation of customer toll dialing. In March, the transistor went to work in Pittsburgh as part of a "card translator" for the automatic routing of toll calls. By year-end, nearly 60 such card translators, each of them incorporating about 230 transistors, will be installed in various key cities throughout the nation. Meanwhile, there are plans to use these miniature but powerful amplifying devices in many other ways in the telephone plant — for instance, to boost voice signals and to modulate voice-carrying electric current.

Compared with the relatively slow development of vacuum tubes and other electronic devices, transistor development has been very swift. Bell Laboratories now has nearly 40 experimental types, some of which foretell applications of the highest order of usefulness. At present, 40 companies are licensed to make and sell transistors and many other companies are licensed to make use of transistors in the equipment they manufacture.

NEW RADIO-RELAY SYSTEM

A NEW RADIO-RELAY system now links Chicago, Milwaukee and Minneapolis. According to the Long Lines Department of the American Telephone & Telegraph Co., the route was constructed to provide for telephone growth and TV network extensions. Initially it will provide about 400 additional long distance telephone circuits in the Wisconsin-Minnesota area and a television channel from Chicago to Milwaukee.

The 423-mile skyway augments existing cable and wire facilities in the Great Lakes region and also ties in with coast-to- coast microwave and cable routes at Chicago. The route extends 88 miles northwest of Chicago to a radio-relay station at Palmyra, Wis., where it splits, with one branch going to Milwaukee and the other to Minneapolis.

Twelve intermediate radio-relay stations, varying in height from 138 to 325 feet, span the route. Atop the tapered-steel towers are receiving and transmitting antennas, each 10 feet square and weighing approximately one ton.

NEW SAFETY BOOKLET

WORKING TOGETHER FOR SAFETY is the title of the National Safety Council's new employe rules manual. The handy 32-page booklet contains instructions in safe work habits applicable to employes in most plants.

The practical experiences of workers, supervisors and safety specialists have established the safe practices covered, beginning with a list of general safety regulations and continuing with special sections on machine operation, hand tools, power tools, protective clothing, fire prevention, materials handling and many other related topics.

Bound in a heavy paper cover and printed in two colors, *Working Together for Safety* will serve as a permanent guide and handy reference for each employe. For a free sample copy and prices for quantities, write the National Safety Council, 425 North Michigan Ave., Chicago 11, Ill.

NEW SILICON DIODE

DEVELOPMENT OF the electronic equivalent of a tiny one-way switch, a silicon alloy junction diode, was announced Aug. 3 by the Bell Telephone Laboratories. The device, which may result in revolutionary advances in telephone switching systems and in many kinds of computers acts as a rectifier, and is capable of operating thousands of times faster than its mechanical counterparts.

A diode, the Laboratories said, may be compared to a pipe with a check valve which allows water to flow in one direction but blocks it from flowing in the opposite direction. Switches of this type can perform "as deft fingers" operating the dial system, or in mechanical computers, the Laboratories said. The silicon diode requires no filament or vacuum, it was brought out, and has an encased element no larger than a match head.

The Laboratories reported that the development grew out of transistor research and development. Silicon crystals were prepared containing controlled traces of an impurity, reducing the normally high reistance of the metal and enabling rectification. Under the sponsorship of the Laboratories, Du Pont has developed a method for the commercial manufacture of high purity silicon, thus opening up an "unlimited source" of the metal for electronic use.

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New Ideas At Work

Continued From Page 71

be successfully prevented by coating the surface of the copper tip with pure iron. This plating process has been used for a number of years on tips for high-temperature, continuous-duty irons.

Recently, the American Electrical Heater Co. of Detroit, which makes "American Beauty" irons, announced an improved method of applying the iron coating that extends the life of tips in production-line service by as much as 100 hours. This process deposits a coating of commercially pure electrolytic iron over a 2-inch length of the copper tip. The tip is then given special treatment to prevent oxidation and corrosion.

The manufacturer cautions against filing or grinding iron plated tips at any time, since either process will remove the iron plating and defeat the objective of its application. All that is necessary to tin an iron plated tip is to clean the working faces of the tip lightly with emery cloth or a wire brush, then apply rosin core solder in the usual way.

New Type Pole Derrick Operates On Hydraulic Principle

THE McCABE-POWERS Auto Body Co. has developed a type of pole derrick that operates hydraulically. As shown in *Fig.* 15, it is a power operated unit that can be rapidly put in its working position by actuating two hydraulic cylinders. The derrick is comprised of two hinged side legs. The side legs are so hinged that in the "stowed" position, the derrick lies flat on top of the line body. Conventional derrick anchor brackets retain the ends of the side legs. These brackets are located on each side of the platform at the rear of the body.

The erecting or positioning hydraulic cylinders are mounted with one end on the rear of the side boxes and the other on the derrick leg; each side leg has an individual cylinder. A clamp securely retains the bottom section of each side leg when the derrick is in the "carrying" position.

To erect the derrick, the actuating cylinders are extended, as shown in *Fig.* 16, until the legs are straight; at this point, engaging pins are put in place to make each side leg a unit and the pins are removed from the holding clamp. (*Fig.* 17). This permits the derrick to be operated. Additional extension of the actuating cylinder locates the derrick for any desired working position, as illustrated in *Fig.* 18, from immediately behind the platform to the extreme end of the stroke. The farthest position is determined by the length of stroke of the actuating cylinder.

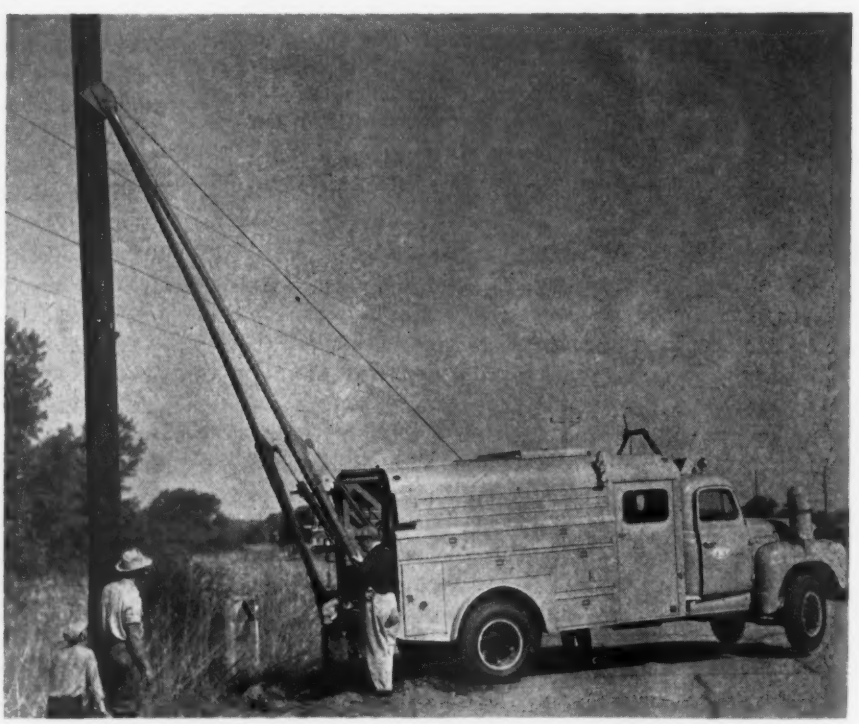


FIG. 15 — Showing McCabe-Powers hydraulic derrick in use to set poles.

FIG. 16 — Erecting the McCabe-Powers hydraulic derrick.

The load carrying capacity of the derrick is diminished the farther away the sheave head is from the rear of the body. However, by proper positioning of the winch line the capacity of the derrick can be increased for long reaches. Therefore, reasonable loads may be raised and moved to any operating position.

This "live" boom feature is stated to provide exceptional flexibility of operation. The elimination of the middle leg allows the loading area to remain clear and objects can be lifted on and off the body as desired.

The derrick legs and the positioning cylinders are suspended in self-aligning bearings. This feature allows free movement and eliminates binding, regardless of the loading or position of the derrick.

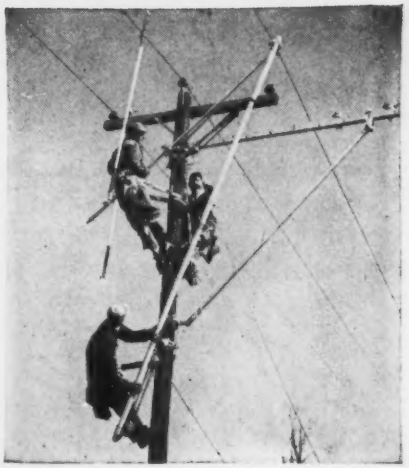
FIG. 17 — Derrick legs in straight position with engaging pins in position and retaining pins removed from holding clamps.

The hydraulic system is carefully planned to give the best possible performance. A vane type, positive displacement pump is the power element. The pump is driven by a power take-off that is controlled in the cab. The system is an open center type; that is, with the valve in neutral the oil merely circulates from the reservoir to the pump, through the control valve and back to the tank. The tank is provided with a filter type breather cap and a full flow filter is placed in the pressure line between the pump and the valve. These units remove the dirt and keep the system clean.

The lifting cylinders are double acting, in that they can be positively moved in either direction in order to extend or retract them. They are manufactured from high grade products and are tested up to 12,000 P.S.I. pressure. They are claimed to be virtually leak proof so that loads can be positioned and held indefinitely.

The control valve that directs the oil to these cylinders is a poppet type. With the poppet design, it is possible to retain oil in the position cylinders. No minute leakage, as in spool type valves, occurs to permit the derrick to drift.

A system relief valve that is integ-



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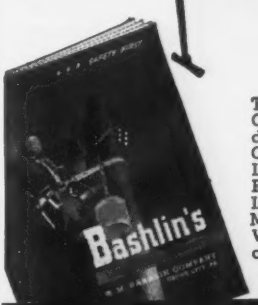

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FIG. 18 — Hydraulic derrick legs fully extended and derrick ready for use.

ral with the control valve permits the oil to by pass when the operating pressure becomes too high. This is intended to prevent overloading of the derrick in some of the extreme positions.

Flow control valves are placed in the circuit. The function of these valves is to always keep a solid leg of hydraulic fluid in the positioning cylinders. No vacuum can be drawn to produce a "spongy," vapor-bound cylinder. These valves also provide a constant rate of travel for all derrick positions regardless of load.

The hose and fittings are a high pressure, wire braid type that is resistant to oil and deterioration in sunlight. The minimum burst pressures are 10,000 P.S.I.

Spiral-4 Cable Greatly Improved in Performance

IMPROVED SPIRAL-4 cqmmunication cable, jacketed with vinyl plastic compound, currently being produced for the Signal Corps is said to carry three times as many telephone conversations as World War II type; yet it has two-thirds the weight, one-sixth less diameter, five times the frequency range, and costs about one-third less than the old rubber covered cable now being replaced, and has far superior electrical and mechanical characteristics over a wider temperature range.

Spiral-4 cable is composed of four conductors of seven-strand copper wire, each separately insulated with polyethylene, and then spiraled around a center polyethylene filament. Over this combination, is a belt of polyethylene to fill all air voids, a carbon-impregnated cloth stabilizing tape to keep the capacitance from changing in dry or wet conditions, and a stainless steel braid to give added tensile strength and to avoid electrical losses which would occur if ordinary steel were used. An extruded vinyl jacket is applied for abrasion resistance, light weight, and ease of handling.

The new Spiral-4 can carry 12 two-way telephone conversations, each on a different frequency band between 0 and 60 kilocycles, as compared to the four message, 12 kilocycle range of the old type cable. A total of 384 teletype messages can be sent at the same time through the .36″ diameter cable, which weighs 370 pounds per mile as contrasted to the 570 pounds per mile of the old rubber jacketed Spiral-4. Messages can be transmitted 200 miles easily with the vinyl jacketed cable, possibly up to 500 miles, while the old type is reliable only to 100 miles.

Since the war, new plasticizers and vinyl resins have been introduced which, upon testing as a jacketing for Spiral-4, the Signal Corps has found will pass the cold bend test with a wide margin of safety. Whereas the old type rubber covered cable would pass at -40° F, the new Spiral-4 cov-

ered with a jacket made from B. F. Goodrich Chemical Company's Geon 8677 vinyl plastic compound will pass at -67° F., or +140° F.

Coming in quarter mile lengths, each coiled on a reel, the cables are fastened together with vinyl covered connectors. Consisting of a woven wire grip, rubber gasket, bar contacts, caps and segments, and covered with a molded vinyl boot, the connector provides a tapering change of flexibility to the ends of the cable; this eliminates the possiblity of breaking due to sudden whipping by wind, rain, ice, and of course, man.

The vinyl jacketed cable is classified by the Signal Corps as non-permanent, although it may be used for many years. It is strung on the ground, buried underground, used under water, and on poles, (*Fig.* 19). Spiral-4 is reusable, and may see many areas and various climates before it is finally discarded. The vinyl jacket helps protect the cable through the years by providing resistance to oils, greases, moisture, weathering, acids, chemicals, alkalies, and abrasions.—THE END.

Almost 20 years ago JOE FAGAN, after directing engineering and construction activities in many parts of the country, predicted a great future of LP-Gas for domestic and industrial uses. Mr. Fagan then visualized the part he would take in this fast-moving industry. His dream began to materialize in 1933 when, with his wife, Esther, he opened a small fuel distributing plant in Southern California. After the first year his business, Mutual Liquid Gas & Equipment Co., grew rapidly and at present Mutual serves approximately 1500 domestic and industrial accounts.

FIG. 19 — New Spiral-4 Cable being installed at Pusan Airstrip, Korea.

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Continued From Page 90

conferences between the AT&T officials and the FCC Commissioners and its Common Carrier Bureau during the past year. The increases in overtime rates and night and Sunday charges will aid in a substantial way the narrowing of the disparity between the interstate and intrastate toll rates which has been a subject of intensive study by state commissioners.

Adequate interstate long distance telephone earnings, the AT&T told the FCC, "are vital to the continuance of a sound and efficient nationwide communications system to meet the rapidly expanding needs of the American public and the requirements of national defense."

The earnings improvement from the proposed rate relief revisions, amounting to around 1.5% return on net investment, "is a construction step in this direction," the filing stated.

"Concerning the rate changes," the FCC announced, "the Bell System told the FCC that the 5-cent increase proposed in the overtime period rates will go in the direction of restoring the relationship between initial period and overtime rates which existed prior to February, 1943, when interstate long-distance rates were reduced by changing the overtime period rates from approximately one-third to about one-fourth of the three-minute station-to-station initial period rates.

"The proposed increases of 5 and 10 cents in initial period night and Sunday rates will result in more uniformity in the percentage differentials between those rates and the initial period day rate at the various mileages. It has been the objective of past rate adjustments to work toward a uniform differential of 20% in station-to-station rates, the Bell System told the FCC," the Commission reported.

"However, although this objective has been accomplished at the longer hauls, station-to-station night and Sunday rates for the shorter hauls are still as much as 40% below the corresponding station-to-station initial period day rates. The revised rates are designed to reduce this differential at the shorter hauls. The present practice of fixing person-to-person initial period night and Sunday rates at the same amount of differential from person-to-person day rates as exists in the station-to-station service at the same distances will be continued."

Significant Decision

ONE OF THE MOST significant judicial determinations in a rate regulation proceeding in many years has been made by the Mecklenburg County, N. C., Superior Court in remanding to that state's utilities commission the rate case of the Southern Bell Telephone & Telegraph Co.

Present fair value of the company's facilities and plant in North Carolina should be the basis for the determination of its rate base, it was ruled by Judge W. H. Bobbitt in ordering the commission to reconsider its rate increase authorization which granted Southern Bell only one-third of the company's rate relief request of $3,426,000.

Judge Bobbitt directed the commission, in determining net operating income, to allow as an expense

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The new protector provides a single assembly for 5 circuits to be mounted on a 10-pin arm requiring only a single ground wire. It is easy to install with only three mounting screws and five pigtail connections. Pole gaining and through bolts are eliminated. Pigtails are factory wired to the protector.

This small size unit is weather proofed with an aluminum cover and sealed with rubber grommets. It is designed to provide an extended arcing period by means of heat radiation fins and to prevent carbon breakdown by means of a light gauge self-destroying cover.

Each electrode is equipped with a fusible element which melts and further reduces the impedance of the fault current path when the power cross continues over an extended period.

Ideal for economical joint occupancy open wire installations.

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Washington Bureau

Concluded From Page 96

"depreciation sufficient to restore currently the value of that property consumed." This judicial ruling would bring depreciation expense into the scope of present fair value of equipment and plant, reflecting the impact of inflation.

After noting certain current economic conditions which reflected the results of inflation on the telephone business, the court stated the position that it may be argued with considerable force that the better rate-making policy would be to adopt net investment as the rate base, and then consider all elements that reflect current economic conditions in fixing the return. But such a method of rate-making, Judge Bobbitt held, is contrary to the North Carolina statutes which are grounded upon the 1898 U.S. Supreme Court decision in Smyth v. Ames (which supports present fair value) and this policy of rate-making must be followed until such time as the North Carolina legislature provides "a new guide in rate-making cases."

Business Service Agency

FORMAL establishment of a business service agency within the Department of Commerce, originally slated to go into effect on Sept. 1, has again been indefinitely postponed, but Commerce officials indicate that such an agency should begin functioning in the relatively near future.

The report circulated by one nationally-syndicated columnist that formation of the agency was being sidetracked by a question of its legality with respect to federal anti-trust laws was termed by several qualified spokesmen as an exaggerated view. The Attorney General has under review the proposal to establish the agency to determine that it falls within the scope of executive authority, but persons connected with the organization of the new agency are confident that it will get the endorsement of the Justice Department.

However, personnel problems and other technical details still must be ironed out and until these matters are accomplished the Commerce Department does not want the agency, presently slated to be known as the Business and Defense Services Agency, to begin functioning. This new office would serve as a "clearing-house" for industry in its dealings with all government agencies and also would take over the materials controls functions held for the past two years by the National Production Authority.—THE END.

AN AMERICAN STORY

—From Otter Creek, Iowa

AN INSPIRING American story of community accomplishment started writing itself at Otter Creek, Iowa, on July 31, 1950. Three years and one month later, residents of Otter Creek looked at the results of their work and envisioned a future which would be made easier by the modern telephone service which their own group effort had brought to the community.

At Dedication and Open House ceremonies on Sunday, August 30, over 100 residents and visitors heard the Otter Creek story of telephone accomplishment. It is a story that has the words "Free Enterprise" stamped on it. And it is a story that Otter Creek, the Independent telephone industry and all America can be proud of.

The story started on July 31, 1950, when 49 people from the Otter Creek community met to discuss their mutual telephone problem.

And they had a big one: The old company had made a desperate effort to prolong the life of its 32 miles of grounded lines. The old magneto switchboard had seen its last days.

To provide the community with some semblance of telephone service a small and old switchboard was purchased from the dissolved Canton (Ia.) Telephone Co. The switchboard was in fair repair and did its job well — interconnecting the worn

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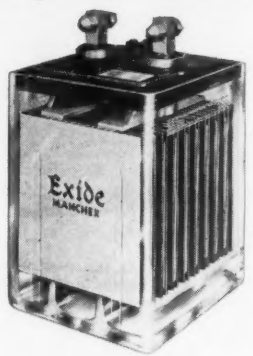

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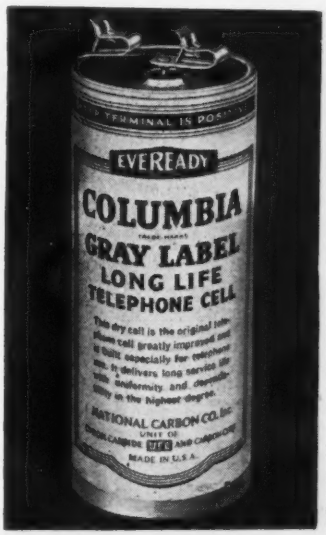

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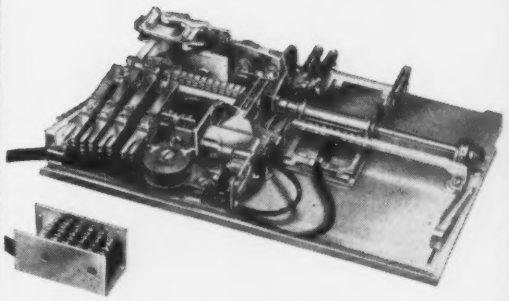

America's fastest-growing dial switching system . . .

Maybe it's because the XY Switch is instantly interchangeable as line finder, selector and connector. Maybe it's the Twin-Bladed Wipers, as long-lived as the switch itself. Maybe it's the Fourth Wire built right *into* the system. At any rate, "XY" acceptance is increasing in a measure unparalleled in dial history. You owe it to yourself to investigate!

●

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out telephones through barbed wire, #9 wire or anything that resembled a wire.

The question confronting the community was "what are we going to do to get better telephone service?" Members of the Otter Creek community felt they could not afford to put money into repairing or building new pole lines. They found that no one would put money into building telephone plant. They realized that tragedy might occur if someone became very ill or a disaster hit the community.

But out of this darkness came a bright ray of hope. Hope for a solution came when the Iowa Independent Telephone Association's Small Company Committee representatives visited with a few Otter Creek folks and offered help from the Association. Following this visit a meeting was held on October 4, 1951 with 46 residents attending.

A plan was suggested whereby the company could be reorganized and the telephone system completely rebuilt.

The Iowa Small Company Committee outlined a workable plan and the necessary steps required to reorganize and rehabilitate the company. The plan was simple and workable and Otter Creek residents promptly voted 36 to 10 for the answer to their prayers — *a new dial telephone system.*

Before anything could be accomplished, there had to be a desire on the part of a few Otter Creek leaders to do something about the old telephone system. Every community has its leaders and Otter Creek was no exception. They went to work at once, learning the details of the plan and how to get things moving.

It was pointed out that before a house or barn is built it is necessary to draw up a plan for its construction and consult a contractor or a carpenter and the same procedure is necessary when rebuilding a telephone plant. With the assistance of a qualified telephone engineer, the Otter Creek company surveyed its area and made an estimate of its required investment, which was about $19,000. This investment covered new telephones, a new central office building, dial equipment, the poles, wire and hardware necessary to furnish modern 2-wire metallic circuits.

Please Turn To Page 108

News Briefs

Continued From Page 38

munications. He began his career in 1924 as a lineman with the New York Telephone Co., and for nine years held various positions with that company.

In 1933 he was employed by a private electrical contractor as an installer of PABX equipment, and in 1937 took a position with the Telephone Department of the Board of Transportation of the City of New York.

During World War II he served with the Communications Engineering Section of the Air Service Command, and in 1946 joined General Telephone of Michigan as state construction supervisor. Earlier this year he was named maintenance methods and results supervisor.

Mr. Hamper began his telephone career in 1941 as a frameman with the Ashland Home Telephone Co. (now General Telephone Co. of Kentucky). He remained with that company, with the exception of three years in the Army between 1942 and 1945, until 1947, rising to the position of wire chief.

In 1947 he joined the Indiana Associated Telephone Co., now General Telephone Co. of Indiana, as personnel supervisor. Two years later he became personnel manager, holding that position until he came to General Telephone of Michigan in October, 1951, as general plant superintendent.

New System Completed At Sargent, Neb.

LAST MONTH, D. E. McGregor, owner of the Sargent (Neb.) Telephone Exchange, started a new era for Sargent telephone users. The new era began when the last wire was cut off the old telephone switchboard which had served Sargent since 1907 and a common battery board was placed in operation.

Mr. McGregor announced that an additional toll circuit will be installed between Sargent and Broken Bow in December.

CITA Pres. Moore Announces Turner Appointment

FOLLOWING a meeting of the Board of Governors of the Canadian Independent Telephone Association (CITA), recently, President Earl H. Moore announced the appointment of G. W. (Guy) Turner as executive secretary of the association. The appointment was made effective immediately.

Mr. Turner, the new executive secretary, is particularly well equipped for his new office. A Past President of the Western Counties Telephone Association, he also served for two years as president of the Canadian Independent Telephone Association.

Prior to his election as CITA President, following a number of years on the Board of Governors, he was chairman of the Bell & Hydro Relations Committee and, later, chairman of the Toll Compensation Committee which successfully negotiated new Toll Agreements with Bell for Independent systems in Ontario and Quebec.

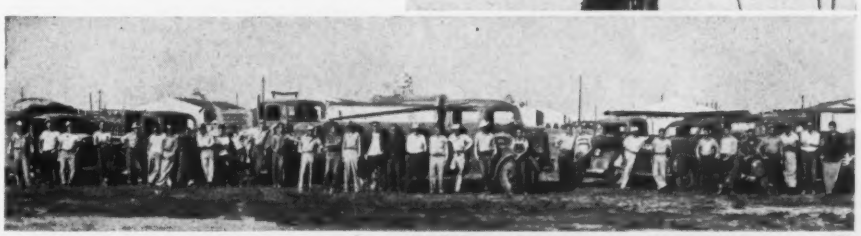
General Tel. of Calif. Announces Organization

EDWIN M. BLAKESLEE, president of the General Telephone Co. of California, has announced numerous changes in top executive positions

We're Working for Uncle Sam, Too!

We're proud to do our part in the defense program. The Neale Construction Company has been chosen by the Government for a number of outside plant construction jobs. And we have bent every effort to complete all our defense assignments in record time.

In the coming year there may well be still more defense work for us to perform. However, our telephone company customers may rest assured that we are still fulfilling our contracts for new construction, maintenance and emergency repair on time. We will be quick to notify you, if a defense contract will necessitate any postponement in scheduling work for you. You understand, of course, that vital communications for the defense of our country must come first.



These fine Signal Corps photographs show the men and equipment of the Neale Construction Company on th job at Fort Hood, Texas. Top picture shows the Neale Cable Spinner in operation. Center shows the full complement of Neale personnel assigned to the job. Bottom shows a crack Neale crew and their modern construction equipment.

Call on Neale for any outside plant job. All work done to A.T.&T. specifications unless otherwise specified. Our trained crews are backed by complete engineering and procurement service.

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of the company. The organizational changes were authorized in a recent meeting of the board of directors at the company's headquarters in Santa Monica.

Harlan W. Holmwood, the company's vice president, was named executive vice president. Employed in 1928 by the Santa Monica Bay Telephone Co., a General Telephone predecessor, Holmwood served in various capacities, becoming secretary and treasurer in 1936. He was called to active duty in 1942, serving in the Army Air Force as a major during World War II. Returning to the company in 1944, he was elected vice president and member of the board of directors in July, 1944.

Dean M. Barnes, vice president and chief engineer, became operating vice president. Barnes has been with the company since 1922 and has held numerous positions in plant and engineering. He was appointed chief engineer in 1942 and then elected vice president and chief engineer in 1949.

R. K. Chase, secretary and treasurer of the company, was named vice president and treasurer. He started with the company in 1941 as assistant secretary and assistant treasurer and was elevated to secretary and treasurer in 1943.

Marshall K. Taylor, attorney and personnel manager, became secretary. Taylor started with the company in 1942 as the company attorney. In 1947 he assumed the duties of personnel manager in addition to the attorney work.

G. T. Ellis, general auditor since 1929, became controller. He was an accountant with the Wisconsin Railroad Commission.

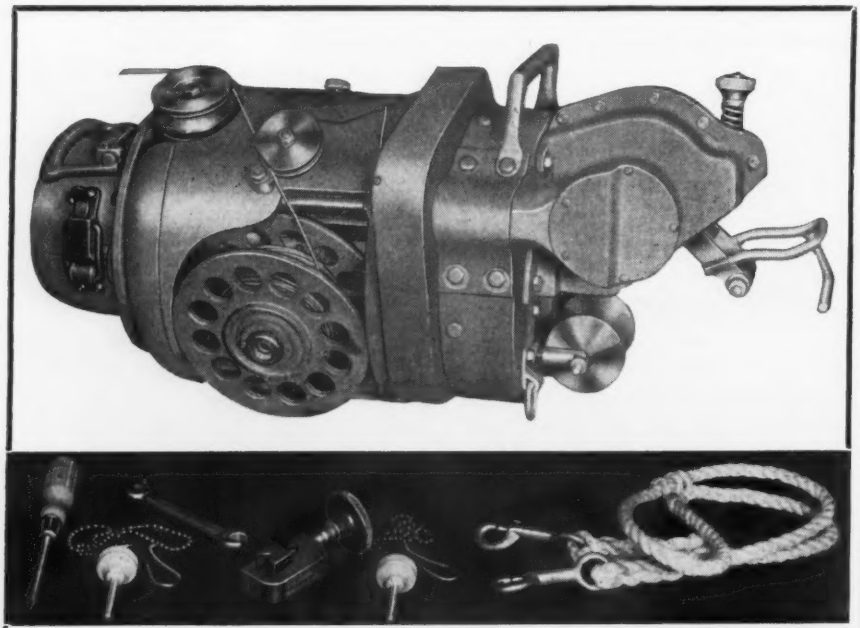
Ivan Knox, assistant general auditor since 1950, became assistant controller. Knox has been with the General System since 1948 and was general auditor of the Consolidated Telephone Co. in Whittier, California when it was sold to General.

In addition to the above changes, Carl Von Hake, general plant superintendent, became chief engineer replacing Dean M. Barnes, and Louis D. Yard, central district manager in Whittier, took over Von Hake's duties. Allan G. Cooley, the company's commercial manager in San Bernardino, was named to fill the position vacated by Yard. Robert L. Thorburn of the company's general engineering staff in Santa Monica, became commercial manager in San Bernardino.

Two newly created positions have been filled also. A. J. Barran, general commercial supervisor, was named director of public relations and H. L. Williamson of the company's general engineering department was appointed executive assistant to the operating vice president.

Coincident with the personnel changes the titles of general commercial superintendent, general traffic superintendent and general plant superintendent were changed by replacing superintendent with manager. Also the company's five district managers were given new titles of division managers.

In announcing these changes, Blakeslee said that the company's rapid growth has increased respon-



This Package Brings You Up to 67% Savings in Outside Plant Maintenance

When you specify spun cable to protect your outside plant investment, insist upon the Neale Model "D" Spinner. It comes to you complete, with all of the accessory tools to service and maintain the machine. And you can work toward a saving in outside plant protection of as much as 67 per cent . . . the experience of telephone companies in cable spinning, reported from all over the country.

Cable spinning is fast . . . economical . . . and practical . . . for new construction as well as maintenance. You get all the possible advantages of cable spinning when you equip your crews with Neale Cable Spinners. Both the Model "D," shown above, and the Model "B" One Man Cable Spinner are supplied to you complete in every detail . . . no extras to buy.

The Cable Spinning Company maintains an around-the-clock service in spare parts. For complete information on Cable Spinning tools, write or phone your jobber today.

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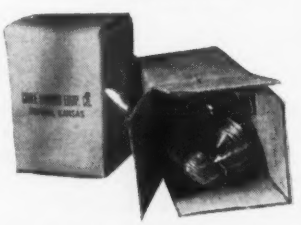
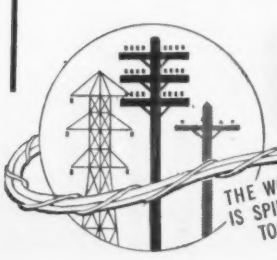


Available in 7 different types . . . all made to meet the toughest construction and corrosion problems.



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sibilities at top level, necessitating the expansion of the executive organization. Since 1948 General Telephone of Calif. has increased its investment from $44,000,000 to more than $150,000,000 and during the same period telephones have increased from 256,000 to more than 550,000. Employes have been added to bring the total to 5,500 compared with 2,600 five years ago.

W. J. Hamm Named V. P. Of Union Telephone Co.

WILLIAM J. HAMM has been named vice president and general manager of the Union Telephone Company, Owosso, Mich., succeeding James F. Van de Vusse who has become president of the Illinois Telephone Company, Bloomington.

Mr. Hamm has been associated for seven years with the Gary organization, second largest Independent telephone group in the United States,

W. J. HAMM

with headquarters in Chicago. After his discharge from the Army in 1946 as a Major in the U. S. Army Signal Corps, he entered the Independent telephone industry with the Gary organization in the capacity of executive assistant to the chief executive. Subsequently, he became assistant general manager, and later, general manager of a group of 11 Gary companies, in many of which he held corporate positions.

Born and raised in New York City, he received degrees in Electrical Engineering and Master of Business Administration from New York University. For 14 years he was with the New York Bell Telephone Co. in the commercial, sales and engineering departments.

In 1942 he was commissioned in the U. S. Army Signal Corps and spent a short time at Fort Monmouth, N. J., before being assigned to the War Plans Branch in the Office of the Chief Signal Officer in Washington. Later, overseas, he became Chief of the Personnel and Training Section of the Office of the Chief Signal Officer for the Western Pacific Theater. As Commanding Officer of the 4025th Signal Service Group, he served in the Philippines, Okinawa and Japan.

Mr. Hamm is married to the former Alice Collins of New York, who was a reporter for FORTUNE MAGAZINE and later during the war worked for Bernard M. Baruch, our "elder statesman."

Kansas Company OK'd For Second REA Loan

LAST MONTH REA approved a $68,000 supplemental rural telephone loan to the W. E. G. Dial Telephone,

You can string Amertel twice the distance possible with regular BB wire! Amertel is **2-1/2 times stronger.** You can span rivers instead of building expensive pilings. You can cut across curves instead of following roads. Experience shows Amertel 135 cuts pole, hardware, installation, and maintenance costs in half. Write or call our nearest warehouse now for prices.

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to support pole structures under adverse ice and wind loadings.

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to withstand the punishment incurred in construction and service.

Long-Life...
provided by famous *Crapo* Galvanized heavy, ductile, tightly-bonded zinc coatings.

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● Each size and grade of time-proved *Crapo* Steel Strand utilizes the superior tensile strength of steel to the fullest advantage. Next time, *specify Crapo Steel Strand* for guys, messenger and overhead ground wires . . . and *save on maintenance!*

ASK YOUR JOBBER!

There is a size and grade of *Crapo* Galvanized Steel Strand for every practical need. Consult the distributor of *Crapo* Galvanized Products near you or write direct for further information!

INDIANA
STEEL & WIRE COMPANY
MUNCIE, INDIANA

Inc., (formerly Johnson County Telephone Co.), Gardner, Kans. Loan funds will be used for additional facilities to furnish modern service to 189 subscribers not included in the first loan of $400,000 approved in Dec., 1951.

With both REA loans, the borrower plans to construct 58 miles of new line, and rebuild 174 miles of the existing line. Dial central offices for the improved system will be located at Gardner, Wellsville and Edgerton. The improved and expanded facilities will enable the borrower to provide modern telephone service to 1,588 subscribers, including 387 now without telephones.

The borrower expects to install new dial central office equipment in three offices and to complete construction of outside plant facilities, covered by the original loan, late in 1953. At that time W. E. G. Dial Telephone will be able to furnish modern service to the 1,400 subscribers who were included under the first loan. Service without toll charge is contemplated among all three of the exchange areas.

The completed system will operate over 295 miles of line in Douglas, Franklin, Miami and Johnson Counties.

Wisconsin Co-Op Receives 2nd REA Allocation

THE REA has approved a $285,000 supplemental loan to the Chequamegon Telephone Cooperative, Cable, Wisc. The loan funds will be used for the construction of 72 miles of additional line, and other facilities, to furnish modern telephone service to 74 subscribers not provided for in the first loan. They will also cover increased construction costs involved since the original loan of $425,000 was approved in Dec., 1951.

The two REA loans will enable the borrower to construct a telephone system consisting of 10 dial central offices which is four more than originally planned. Since the first loan was approved, the new cooperative has purchased, as a nucleus, telephone properties consisting of 228 miles of line serving 590 subscribers. The borrower plans to build 273 miles of new and rebuild 50 miles of the acquired. The added facilities and improvements possible under

Please Turn To Page 106

Simple as A B C

Handle heavy reels easily and safely; remove wire or cable from top or bottom, front or back of reel with

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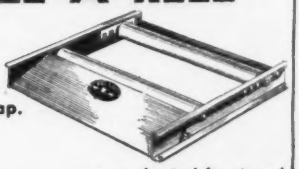

Style A: 2,000 lbs. cap. 37.50

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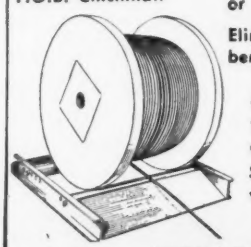
Low slanted front and positive front lock insure quick loading or unloading.

Eliminate jacks, cumbersome handling.



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CABLE TESTER ..... (Model L)
LOCATOR-TESTER ..... (Model A)
EXPLORING COIL AMPLIFIER (Model E)
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Check These Outstanding Advantages:

- Lightweight for simplified and economical installation
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- Excellent physical stability in service assured by tough and uniform final jacket
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both REA loans will bring improved service to the existing subscribers and modern service to 659 subscribers now without telephones. 37 of the subscribers will be switched through a nearby magneto exchange.

Dial central offices will be located at Cable, Mason, Brule, Waine Oulu, Herbster, Port Wing, Barnes, Lake Namekagon, Marengo and Grandview. Present plans include service without toll charge between some of the borrower's exchange areas. The completed telephone system will operate over 474 miles of line in Bayfield, Douglas and Ashland Counties. It will have backbone plant facilities to meet the needs of all potential subscribers in the operating territory.

$605,000 REA LOAN For Mebane, N. C.

THE MEBANE HOME TELEPHONE Co., Mebane, N. C., has been granted a $605,000 REA allocation to improve and expand rural telephone service in Alamance and Orange Counties. The applicant now furnishes dial service to 930 subscribers through a central office at Mebane. With the loan funds the borrower plans to construct 236 miles of new line, and new dial central office buildings at Mebane and Prospect Hill. These facilities will enable the company to furnish improved service to the existing subscribers and modern service to 749 families now without telephones. There will be service without toll charge between the Mebane and Prospect Hill exchange areas; also between these areas and Burlington. The completed system will consist of 273 miles of line and will have basic plant facilities to handle all potential subscribers in the operating area.

$66,000 Supplemental Loan Approved for Colfax, Calif.

THE COLFAX Telephone Exchange, Colfax, Calif., has been granted a $66,000 second loan by REA. The loan funds, together with the first loan of $120,000 approved in Oct., 1952, will be used by the borrower to modernize and expand the present system serving 464 rural subscribers in Placer and Nevada Counties. The borrower proposes to rebuild the greater part of the existing line and add 3-½ miles of new line. A new combination dial central office-commercial office building will be constructed at Colfax. With these new and improved facilities, the borrower will be able to bring modern telephone service to 589 subscribers. The completed system will consist of 36 miles of line and will have capacity to meet the needs of all potential subscribers in the operating territory.

Supplemental Loan For Ramer, Ala. Company

THE RURAL Electrification Administration has approved a $130,000 supplemental loan for the Mon-Cre Telephone Cooperative, Ramer, Ala. The funds from this loan will be used to cover increased costs resulting from a larger operating area and facilities to serve 121 subscribers not included in the first loan. The original loan approved in Mar., 1952 was for $125,000.

With the two REA loans, the borrower plans to construct a system of 162 miles of line which will bring modern telephone service to 430 rural subscribers in Montgomery, Cren-

Whether your BIG pole problem is sleet strain, dry splitting, or damp rot, you'll solve it with Black Beauties! The Texas Creosoting Company's careful pressure-treating process drives creosote into the wood so it *stays* there—gives you a pole that keeps its strength, resists splitting, and defies rot. Cut your maintenance costs as many companies have done—order Black Beauty Poles today!

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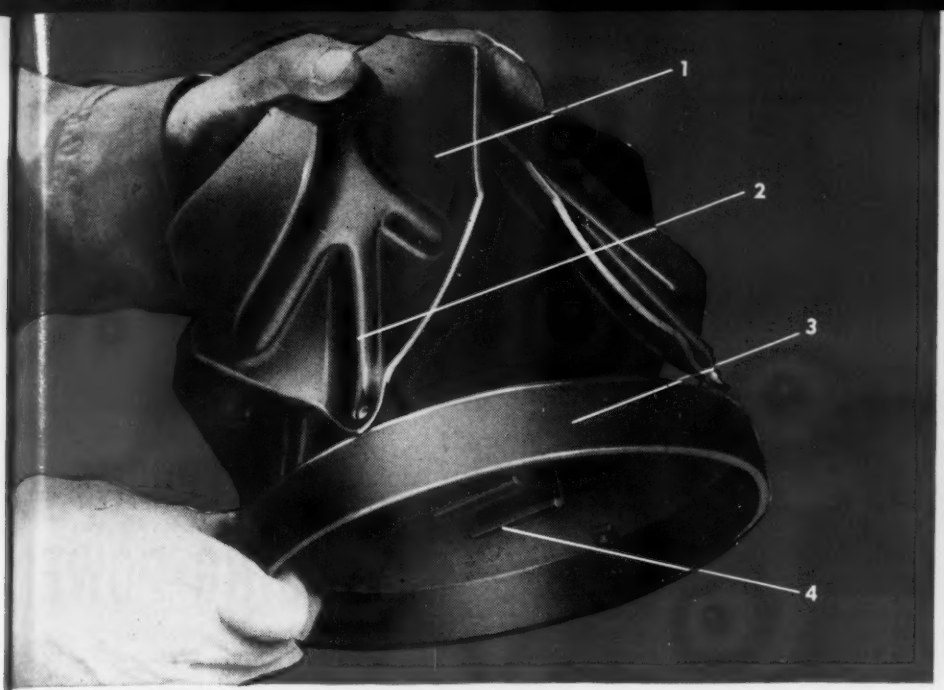


Heavy, shovel-shaped blades (1) slide into the earth with minimum disturbance. Ribs (2) on the underside stiffen the blades and cut friction against base. Heavy domed base plate (3) with deep skirt for strength. Nut retainer channel section (4) welded to the underside of base keeps the rod from pulling the nut through the base.

Note the large, square tamping area (5) and the wide hinged sections (6) which keep the blades from twisting if a stone is encountered while the anchor is being expanded. "Ears" (7) inside the center of gravity of two opposed blades give additional area for holding power, better balance. (8) "Projected Area," as L-M figures it, is the area of the *shadow* cast by the expanded anchor, not the total surface area of the plates including vertical sides of ribs as usually figured.

Tests Show L-M Anchors Have High Strength, Minimum Creep

The value of an anchor depends both on its inherent strength, and on its ability to resist creep. You can realize the importance of creep better if you take an actual example. Let us suppose a line built with 35-foot poles at 200-foot span, and 8-inch sag. If an anchor guyed at 60 degrees had a 4-inch creep, the resulting sag would be 86 inches! No wonder utility men are cautious about creep!

Design Based on Extensive Tests

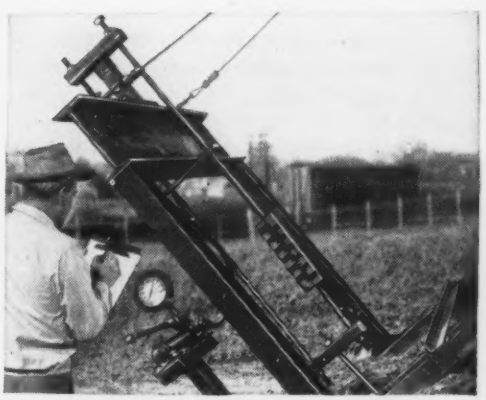
The design of L-M 4-way expanding anchors is based on a very extensive series of pull tests. As shown in the small photo, anchors were buried, and pulled with a hydraulic lift, till the anchors gave or the rods broke. One after another, weak points were eliminated, and the anchor was redesigned to cut creepage.

The features shown in the illustrations are the result of this test program. We feel this L-M anchor is the finest you can get. It assures the greatest strength with minimum creepage.

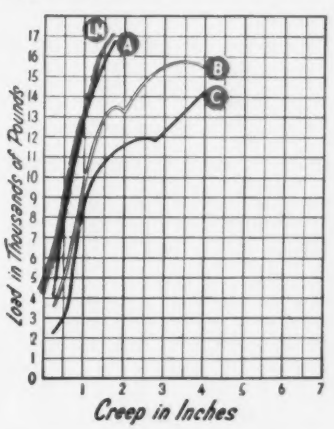
The four blades are formed of a single piece of steel, shaped, and held to the base by four small bolts that shear off easily by tamping.

Ask the L-M Field Engineer

For catalog information and samples if you wish, ask the L-M Field Engineer who calls on you; or write Line Material Company, Milwaukee 1, Wisconsin (a McGraw Electric Company Division). 116-R



Pull Test Equipment: Hydraulic lift on U-shaped steel frame with pump and pressure gauge for recording the pounds of pull applied to anchor rod. Tests were made both at vertical and at 45 degree angles.



In tests with 3 comparable anchors the L-M-designed anchors held creepage to a minimum, even at loads of 17,000 pounds.

Available in 3 Sizes

Catalog Number	Diameter—Closed—Inches	Expanded Area—Square Inches	Nominal Holding Power Class—Pounds	Anchor Rod Diameter—Inches	Minimum Mechanical Strengths Without Noticeable Deformation—Pounds
200026B1	8	110	6,000	⅝, ¾	16,000
200026B2	8	125	8,000	⅝, ¾	21,000
200026B3	8	132	10,000	1	24,000
200026B4	8	132	10,000	⅝, ¾	24,000

All 3 sizes are REA-approved, and have been thoroughly tested by both L-M and by utility companies. You can depend on them to hold!

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THE NORTH ELECTRIC MANUFACTURING COMPANY

Newly installed Message Center at Cook Electric Company's Main Plant, Chicago, which handles all local, long distance, inter-plant, mobile radio, and PBX telephone traffic. The TWX, Western Union, Autocall, Alarm, and the PA Call Systems are also attended. Travel and hotel reservations are included in the duties of the three operators.

shaw, Pike and Bullock Counties. New buildings to house dial central office equipment will be constructed at Ramer, Lapine and Pine Level. The Ramer building will also house commercial office facilities. Present plans include service without toll charge among all three exchange areas. The completed system will have capacity to serve all potential subscribers in the operating area.

American Story

Continued From Page 100

After determining the required amount of money, it was necessary to study the company's corporate structure and determine what would be necessary to reorganize a new company. This being a legal problem, the Otter Creek group sought the aid of an attorney.

It was also necessary to develop a financing plan for capital improvements and determine how the money would be raised. It was also necessary to determine the amount of money needed each year to successfully operate the new company.

Here again, assistance of the Iowa Association's Small Company Committee was most helpful. After reviewing many financing plans the Otter Creek group decided to sell stock in the new company to raise sufficient capital to construct a dial system. At first a number of people asked if the leaders in the telephone movement believed that the purchase of telephone stock was a good investment.

According to the booklet "An American Story" published by the Otter Creek Co., — "We pointed out that our project for improving service in our area was a community effort. We wanted and needed good telephone service. We stressed that our plans were to set aside 5 per cent of the total value of the plant each year. This would be our depreciation reserve. In other words, a dollar invested today will have a dollar value behind it 20 years from today. Our rates were established to provide all necessary expenses (including depreciation) and leave sufficient funds for payment of dividends.

"At first we could not understand how we could invest our money in this community project. We had to overcome the feeling that we were spending it. It was difficult to believe, when our engineer estimated the revenue from our 68 telephones and estimated our expense of operation, which included depreciation, maintenance, taxes, bookkeeping, etc., that we would have sufficient money left to pay dividends on common stock. Yet today our common stock is yielding around a 7-per cent return and all the telephone stock was purchased by Otter Creek folks.

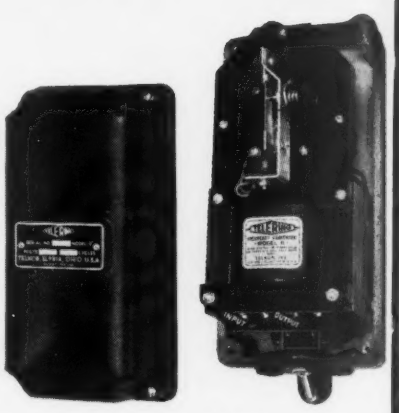
"The plain way to state our case is we have brought our community closer together. Our company belongs to our people, — that is, the people who use the service. The management of the company includes our friends and neighbors that we see every day. Our investment is as sound as any investment we can make

Please Turn To Page 110

Construction M

With the Double Gu
and America's Le

for TELEPHONE
RINGING POWER



Model "R"
4" x 4½" x 10"
Wt. 7½ lbs.

TELERING

is best in
- PRICE
- PRINCIPLE
- PERFORMANCE

An excellent ringing machine for telepho systems large or small, civilian or in milita service.

ALTERNATING and DIRECT CURRE operated units.

Rated output of standard unit, operating 110-115 V, 60 CPS is Approx. 90V, at CPS, 30w. Data on units operating on oth voltages and frequencies furnished on reque

"You will be pleased with your investme

STROMBERG Telephone CARLSON

TELEPHONES SWITCHBOARDS

Materials and Supplies . . .

Guarantee of Stromberg-Carlson
Leading Manufacturers . . .

reliable zinc cable hangers

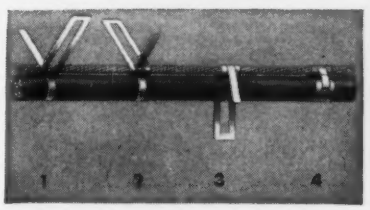
INSURE NO SHEATH CUTTING

NO CREEPING

NO RUSTING

Even badly worn cables hung with Reliable Zinc Cable Hangers will last much longer. The reason is merely that all cable movement that results in wear and sheath cutting is eliminated, because the cable is rigidly bound to the messenger. This is also an added lightning protection—a solid ground is established between messenger and cable.

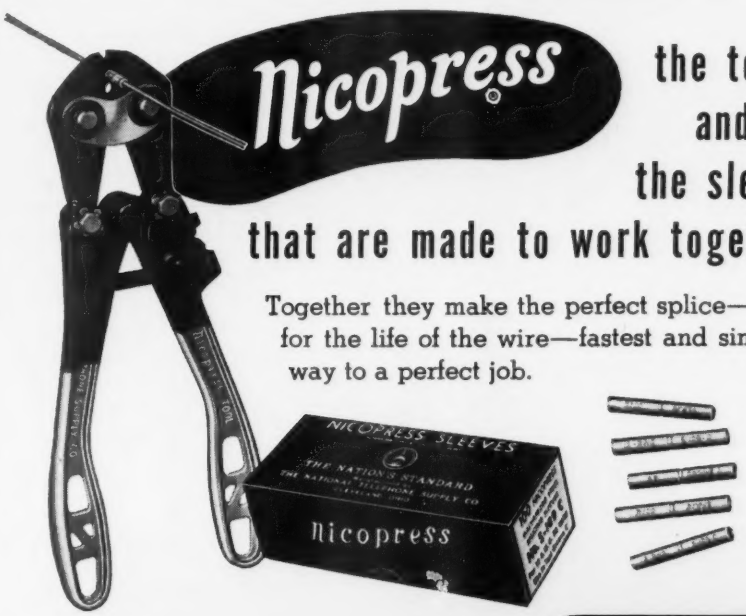
Reliable Zinc Cable Hangers are strong, economical, and easy to install.



The four simple steps above clearly illustrate the simplicity of a Reliable Zinc Cable installation.

"RELIABLE" *Identifies the Quality*

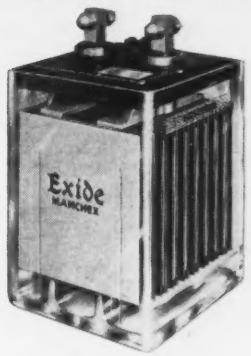
Nicopress



the tool and the sleeve that are made to work together

Together they make the perfect splice—good for the life of the wire—fastest and simplest way to a perfect job.

Exide-Manchex
telephone batteries



assure positive operation

For Central Office and Private Branch Exchange Equipment

This is proven daily in exchanges of every size . . . for over 60 years Exide Batteries have been serving the Telephone Industry . . . the Manchester positive plate with its exclusive button type construction provides exceptionally long life . . . latest developments on molded glass jars permit compact space saving installation . . . heavy terminal posts with copper inserts provide extra conductivity for sustained voltage at high discharge rates . . . microporous rubber along with slotted plastic separators, are impervious to chemical and electrical reactions . . . plastic spacers assure plate alignment . . . for assured dependability, long life and low-cost maintenance use Exide Manchex.

The Electric Storage Battery Co.
Philadelphia, Pa.

1888 . . . Dependable Batteries for 65 Years . . . 1953

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Quality WIRE

for Every

Telephone NEED

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DROP WIRE	INTERIOR
BRIDLE	INSTRUMENT
SWITCHBOARD	POTHEAD
TREE	CABLE TERMINAL
GROUND	FIXTURE
BURIED WIRE	PLASTIC INSULATED

ACORN INSULATED WIRE CO., INC.

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NORTH ELECTRIC CO., 501 S. Market St., Galion, Ohio.

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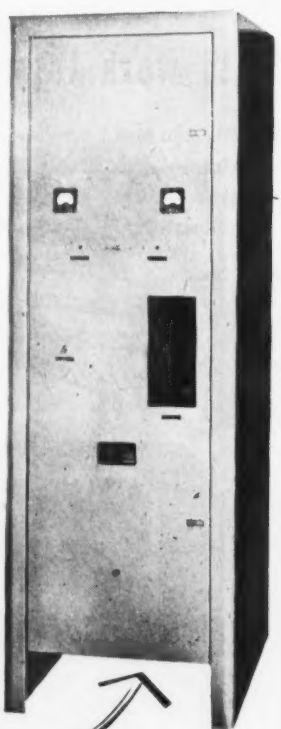
"TELE-CHARGERS"
For Long Battery Life...
Preventive Maintenance

Permanent Magnet Reference and Magnetic Amplifier Controls

Regulated Selenium Rectifier Battery Chargers with extremely close voltage and drift-free regulation, precise automatic current limiting, fast response and low ripple. Output ratings 49 to 65 VDC, 0 to 1600 Amps, 23 to 27 cells. Regulation ±0.2% from no load to full load with ±10% AC line variation. Ripple voltage filtered to less than 0.5% RMS. Response better than 0.1 second. Low installation cost . . . compact for minimum space requirement.

Write for complete engineering specifications.



INET INC.

8655 South Main Street, Los Angeles 3, California

today. The more we invested the more dividend dollars we are receiving. We are getting our service at a very low cost. (The company serves eight parties or less on each line and rates are $3.50 per month plus taxes.) So, you see, our investment in telephone stock is only a minor effort. Our community is more united now. Our friends are many and are as close to us as our telephone . . ."

At the Dedication and Open House ceremonies, Otter Creek was complimented on its accomplishment by speakers: — Foryst Wells of Emeline, chairman of the Iowa Independent Telephone Association's Southeast District Small Company Committee; Iowa Association President Cliff Pearce, Riceville; Congressman Tom Martin, Iowa City; Iowa Association Secretary Bill Miller, Des Moines; Iowa Association Director and Counsel Clyde McFarlin, Montezuma; Howard Amick of the Northwestern Bell Telephone Co., Des Moines; and John G. Reynolds of Telephone Engineer Publications, Chicago.

And Otter Creek had earned every compliment. Its residents had found that by working together their capabilities were unlimited. They had organized their own work crews and built their own plant under the supervision of a telephone engineer. The Iowa Independent Telephone Association and the members of its Small Company Committee had led the way. The Northwestern Bell Telephone Company and its men had worked with the group as did men from other neighboring telephone exchanges. Assistance was given by L. W. Proctor, Iowa representative of the North Electric Co., and other suppliers of telephone equipment.

Today, the Otter Creek Telephone Co., Inc., is looking forward to a bright and prosperous future. Its officers, President Frank Weiland, Vice-President Leonard Stokesberry, Secretary Mrs. Leonard Stokesberry, and its Directors Loren Ehlinger, LeRoy Marcus, Joe Wirtz, and Dave Phillips have written a real American Story of accomplishment. And they are continuing that story by protecting their investors with an excellent accounting system and efficiently carrying out their day-to-day management and maintenance problems.

THIS *Nicopress* SLEEVE

plus

THIS *Nicopress* 17-2 TOOL

Make better pair splices faster than you've ever made them before!

Ask Your Jobber

THE NATIONAL TELEPHONE SUPPLY COMPANY

The National Telephone Supply Company

5100 SUPERIOR AVENUE • CLEVELAND 3, OHIO

Canadian Mfr.—N. SLATER CO., LTD., HAMILTON, ONT., CANADA

Export Distributor—INTERNATIONAL STANDARD ELECTRIC CORP., NEW YORK, N. Y.

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PENTA
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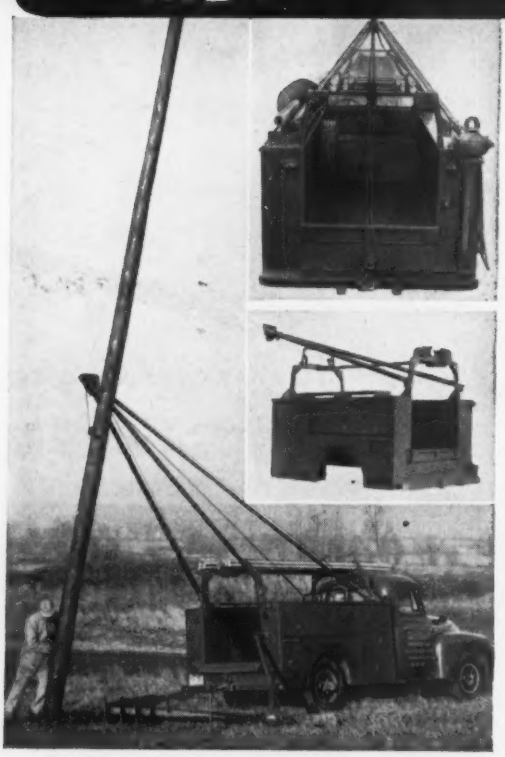
POLES
FULL LENGTH TREATED NORTHERN WHITE CEDAR
They are light in weight—easier to transport and set; they are clean and dry—easy to climb—safe for linemen. They are pleasing in color—neat in appearance.
PAGE AND HILL, INC.
MINNEAPOLIS, MINN. • 50 CHURCH ST., NEW YORK, N.Y.
DISTRIBUTED BY AUTOMATIC ELECTRIC SALES CORPORATION • • • STROMBERG-CARLSON COMPANY

Two-Man
COMBINATION TRUCKS
Pay Dividends

With a ¾ or 1-ton truck and Tel-E-Lect "Combination" Body, you can . . .
- Dig holes and set poles up to 40'
- Handle your regular service work
- Reach a variety of jobs quicker
- Operate with two men at less cost

IT'S A COMPLETE PACKAGE, tailored for your make and model of truck. Derrick, winch and digger drive are all assembled to the body, ready for your truck chassis. Easily mounted in a few hours by your local mechanic.

Write for Bulletin

TEL-E-LECT
PRODUCTS, Inc.
10013 Minnetonka Blvd., Minneapolis 16, Minn.

New Brochure Tells Story Of "Onan"

"MEASUREMENT FACTORS of A Company And Its Product" is the title of a new 4-color, 40-page institutional brochure offered by D. W. Onan & Sons Inc., Minneapolis, Minn., manufacturer of electrical generating equipment.

This handsome, plastic-bound booklet, 8½" x 11" in size, was designed and illustrated by an outstanding Northwest artist. More than 120 eye-catching photographs tell the story of Onan Products . . . what they are and how they are manufactured. It tells pictorially what goes into the product. It is a story of people and planning, of tools and equipment.

Production facilities and methods are described and illustrated. The "one-product" policy of the company is stressed, along with employe-management relationship. Mention is made of the company's growth and two pages are devoted to illustrations showing Onan's world-wide distributor, dealer, and service outlets. The unlimited range of uses for the company's product is shown in more than a score of application photographs. A colorful presentation illustrates a variety of models of Onan Electric Generating Plants.

Copies of this brochure are available by writing the manufacturer, D. W. Onan & Sons Inc., University Avenue S. E. at 25th, Minneapolis 14, Minnesota. Ask for Institutional Booklet, "Measurement Factors."

Management Speechless At Ray-O-Vac Sales Conference

SALES EXECUTIVES in charge of the 1953 General Sales Conference conducted by the Ray-O-Vac Co., Madison, Wis., have turned up what promises to be a highly popular new trend. They have banned all speeches, division managers' reports, and other "personnel-numbing mumbo-jumbo," as they call it.

An equally unusual technique is used by Ray-O-Vac to introduce its men to one another. As each man comes forward, a large picture is projected on a screen behind him. This picture is taken in the salesman's home town, in front of his own house, and includes his entire family — plus dogs, cats or pet parakeets.

J. A. McIlnay, Ray-O-Vac vice-

president in charge of sales, reports that his sales force thoroughly enjoys another Ray-O-Vac innovation called "Confidentially Speaking." Here each man is encouraged to blow his top, tell off the boss about what is wrong with the company — and how he thinks it should be run. This way an accurate pulse-reading of problems in the field is quickly taken.

Ray-O-Vac's "Hot-Seat Session" is one more of the unique methods employed to maintain high interest level at its meeting. Key members of management are put on trial for complaints from the field men. Cross-examination by any and all members of the audience continues until everyone has had his questions thoroughly answered. Information is brought out faster, more informally, and hours and hours of pre-Conference speech writing and preparation are not diverted from regular business.

The company has coined the word "Sellology" to describe the over-all post-graduate course each man goes through to win a "Master's Degree in Techniques of Professional Selling." This year's "Sellology Seminar" was conducted in cooperation with the University of Wisconsin's Industrial Conference, in University classrooms.

INTERNATIONAL TELEPHONE DISPLAY—Telephone subsets and switching equipment manufactured by associated companies in the United States and Europe figured prominently in the exhibit held recently at the annual stockholders' meeting of International Telephone & Telegraph Corp. in Nutly, N. J. Shown here are various types of telephone receivers and automatic telephone switching equipment, including Crossbar from the Kellogg Switchboard & Supply Co., Compagnie Generale de Constructions Telephoniques, Paris, and Bell Telephone Manufacturing Co., Antwerp. Kellogg's new Select-O-Phone system, explosion-proof handsets, and Step-by-Step switching equipment from Mix & Genest Stuttgart, Germany, and Federal Telephone & Radio Corp., Clinton, N. J., also were featured. The exhibit, which covered the entire range of IT&T products from air conditioners and refrigerators to the latest radio aids to aerial navigation, was viewed by approximately 700 stockholders.

Automatic Electric Announces Appointments

AUTOMATIC ELECTRIC Sales Corp., domestic distributing organization of the Automatic Electric group, has recently announced new appointments for two of its key personnel.

Harrison C. Smith, formerly vice president in charge of the Pacific Coast District, with headquarters at San Francisco, now makes his headquarters in Chicago as vice president in charge of Industrial Sales. Keith A. Regel, formerly manager of Industrial Sales, has been appointed manager of the Pacific Coast district, with headquarters in San Francisco.

Mr. Smith, who has been in charge of the Pacific Coast district since 1943, has had a long and productive career with Automatic Electric. He entered the employ of the company in the East as an installer in 1924, was called to Chicago in 1929 to undertake an assignment in the Merchandise Order Division, and in 1934 was given an assignment as industrial communications equipment salesman in New York State. In 1939, he was named manager of the East Central district with headquarters in Cleveland, in which capacity he continued until his move to the Pacific Coast in 1943.

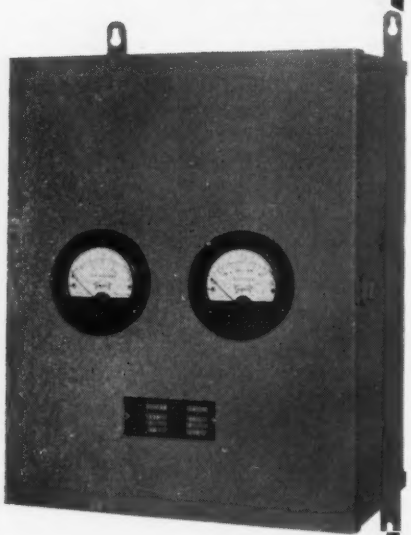
Mr. Regel entered the employ of Automatic Electric Sales Corp. in 1941 after nine years with Postal Telegraph where he received an excellent background of communications experience in both administrative and engineering capacities.

During the war years, Mr. Regel

Open house at Trenton, Ontario, wood-treating plant of the Canada Creosoting Co. Left photo shows the first charge of jack pines to be treated with pentachlorophenol, removed from one of the cylinders at the Trenton plant. Looking on (from l. to r.) are: J. H. PALMASON, general manager, Canada Creosoting Co., Ltd.; D. E. TERRY, works manager at Trenton, and MAYOR R. E. WHITLEY of Trenton. Right photo shows (l. to r.): MR. PALMASON, DR. GEORGE LUMSDEN of the Bell Telephone Laboratories, Murray Hill, N. J., MR. TERRY and MAYOR WHITLEY examing a boring taken from the first charge to be treated with penta.

Dependable Power

for Years-
and Years-
and Years-
of Service!



ELECTROX
BATTERY ELIMINATORS
BATTERY CHARGERS

In sizes and capacities to meet every telephone power requirement.

See your Electrox Jobber.
Write for Bulletin 1465.

*T.M. Reg.

RECTIFIER DIVISION
SCHAUER
MANUFACTURING CORP.

4516 Alpine Ave. Cincinnati 36, Ohio

HARRISON C. SMITH (above) has been appointed vice president in charge of industrial sales of the Automatic Electric Sales Corp.

served as Government Contract Service Manager, continuing in that capacity until the end of the war when he became executive assistant to the president of Automatic Electric Sales. In 1948 he was appointed manager of Industrial Sales, and in this capacity supervised and coordinated all sales activities relating to industrial electrical control components and systems and private automatic telephone systems. In the course of his work he has become thoroughly familiar with the requirements of customers in both the telephone and industrial fields.

In his new position, Mr. Regel now has general supervision over all

KEITH A. REGEL (above) has been appointed manager of the Pacific Coast Division of the Automatic Electric Sales Corp.

QUALITY • ECONOMY • SERVICE

TELEPHONE
• SWITCHBOARD
• INSTRUMENT
• OPERATORS
CORDS
by Commercial
NYLON • NEOPRENE
MERCERIZED COTTON

• TROUBLE FREE CONDUCTIVITY • LONG LIFE •
Write for Catalog and Samples

COMMERCIAL
CORD and SUPPLY CO., Inc.
MANUFACTURERS OF CORDS FOR ALL MAKES AND TYPES OF TELEPHONE INSTRUMENTS
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PORCELAIN PRODUCTS
SCREW EYES
PREFERRED BY INSTALLERS EVERYWHERE

PARAGON KNOBS

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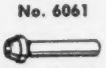
No. 6061

Tough, smooth insulators and durable hot-dip galvanized screws mark the quality built into Porcelain Products insulated screw eyes. Dimensionally accurate to A.T.&.T specs. The same skill and care go into the production of the complete Porcelain Products line of telephone insulators. Available through your jobber. Write for complete information.

STRAINS

TREE KNOBS

No. 4-2 GR.


TUBES

PORCELAIN PRODUCTS, INC.
FINDLAY, OHIO

sales activities in the Pacific Coast district which includes California, Washington, Oregon, Nevada, Utah, Arizona, and part of New Mexico.

Indiana Steel and Wire Co. Appoints New Sales Manager

ROBERT H. BEISSWENGER has been appointed manager of sales, electrical materials, by Indiana Steel & Wire Co., Muncie, Ind.

A native of Philadelphia, Mr. Beisswenger graduated from Temple University in 1939 and entered the employ of Philadelphia Electric Co.

R. H. BEISSWENGER has been appointed manager of sales, electrical materials, by the Indiana Steel & Wire Co., Muncie, Ind.

He enlisted in the U. S. Army in 1941 and was assigned to the Signal Corps. He served five years in this country and abroad and, while in the Italian theater, was executive officer of a battalion engaged in pole line construction work. He was discharged in 1946 with the rank of Major, Signal Corps.

Mr. Beisswenger returned to the Philadelphia Electric Co. after his discharge but subsequently entered the selling field. He later formed his own sales agency to handle electrical products.

New Company

OAKES, N. D. — The James Telephone Co. has been organized to serve the west Oakes territory. Officers of the new company are: Allison Zimbelman, president; Wesley Spear, secretary-treasurer, and Fred Gramlow, Leo Ditch, Ole Loe, Daniel Frojen and Lawrence Spear, directors.

in any emergency!

LOWELL WIRES GET THE CALL THROUGH

The technical staff at Lowell Insulated Wire Company uses many physical tests to determine the effect of heat, aging, tensile strength, compression, cold, acids, oils, moisture and abrasion. They also employ extensive electrical tests. To create the maximum performance and dependability which is characteristic of Lowell Insulated Wire, many factors have been combined in a well balanced and efficient manufacturing process. That is why through long years in actual service Lowell Wires maintain a record for reliability and low maintenance or replacement costs. Write today for details.

DROP WIRE — neoprene jacketed, rubber insulated — between buildings and open wire telephone line.
BRIDLE WIRE — neoprene jacketed —link between drop and inside wires.
DUCT WIRE — plastic insulated — used inside buildings for connecting outside circuits to station sets.

LOWELL INSULATED WIRE DIVISION
OF The Overlakes Corporation
171 LINCOLN STREET ··· LOWELL, MASSACHUSETTS

Neoprene Jacketed, Rubber Insulated Drop Wire, with Bronze, Copperweld or Copper conductors, Brass flashed or tinned — Neoprene Jacketed Outside Distributing Wire — Tree Wire — Plastic Insulated Inside and Duct Wire — Jumper and Distributing Frame Wire — Glazed Braided Inside Wire.

DISTRIBUTED BY: Jack Pruzan Co., 109 Jackson Street, Seattle 4, Washington; **The Telephone Repair & Supply Co.,** 1760 Lunt Avenue, Chicago 26, Illinois; **Hughes Supply, Inc.,** 816 South Main Street, Gainesville, Florida.

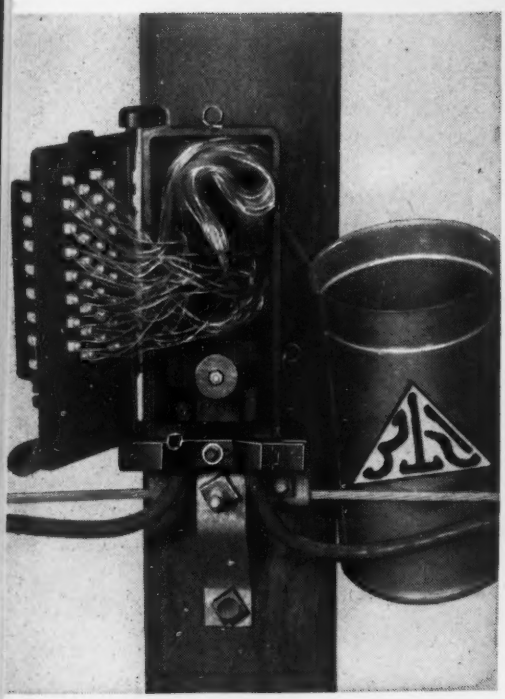
KELLOGG...

for SUPPLIES

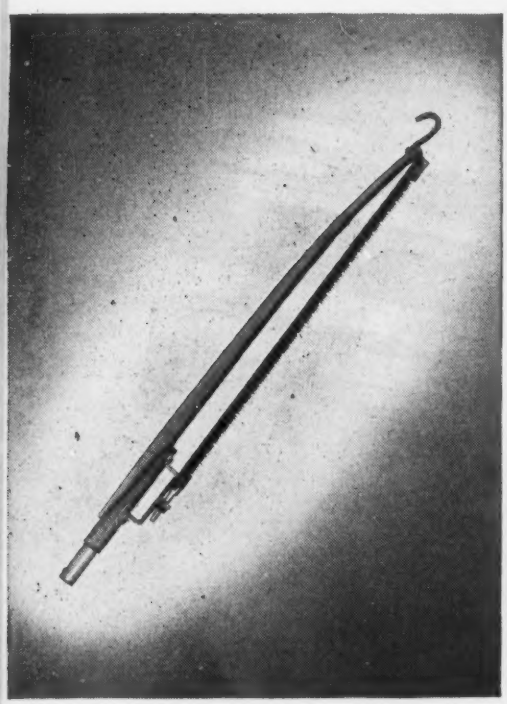
Well-stocked inventories of guaranteed line supplies are carried in Kellogg warehouses located in Chicago, Kansas City, Dallas, San Francisco, and St. Paul. Order from the warehouse nearest you and be assured of prompt deliveries.

- **The following nationally-known manufacturers of supplies for the independent telephone industry are participating in the Kellog Co-operative Advertising Campaign.**

American Creosote Works, Inc.
Ansonia Wire & Cable Company
John Bean Division
Food Machinery and Chemical Corp.
Bishop Manufacturing Corporation
E. D. Bullard Company
Continental Cross-Arm Co., Inc.
Cook Electric Company
Copperweld Steel Company
Diamond Wire & Cable Company
The Electric Storage Battery Company
Everstick Anchor Company
General Insulated Wire Works, Inc.
Gould-National Batteries, Inc.
W. A. Hammond Drierite Company
Indiana Steel & Wire Company
Kester Solder Company
Lorain Products Corporation
National Carbon Company
A Division of Union Carbide and Carbon Corporation
National Telephone Supply Company
Newman Manufacturing Company
Ray-O-Vac Company
Raytheon Manufacturing Company
Reliable Electric Company
M. M. Rhodes & Sons Company
R T & E Co.
Schauer Manufacturing Corp.
Telkar, Inc.
Vulcan Electric Company



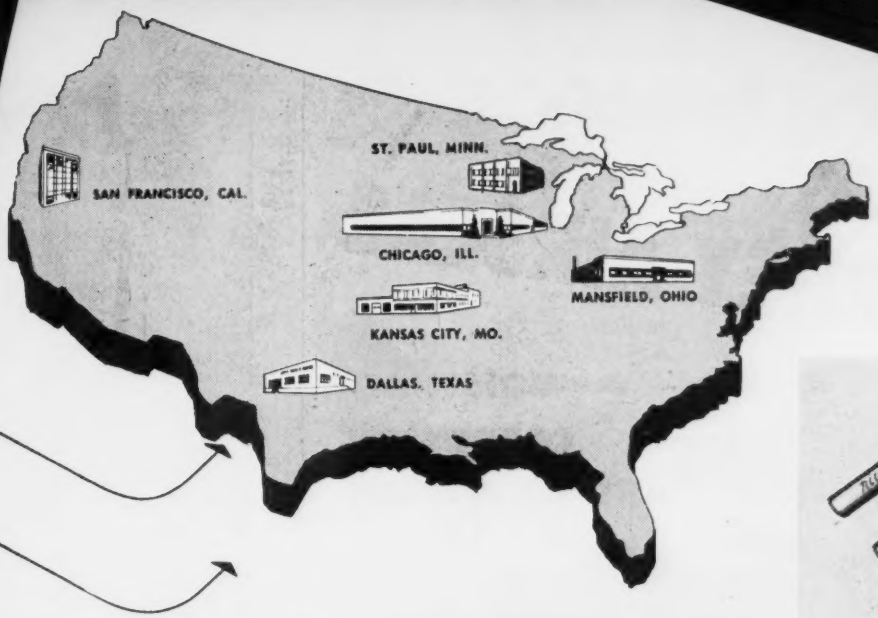
Save Installation Time and Money with RT&E Co.'s type MP Cable Terminal for use with plastic insulated and jacketed cable—made for terminating 6, 11, or 16 pair. Terminal provides an ideal test, check and cut-in point without reopening the cable.



To Cut Better-Faster-Easier use NEWMAN MANUFACTURING CO.'s tree saws and trimmers. Saw, above, is equipped with Bushman Blue Blade—cuts limbs up to 4" in diameter, and by under cutting, limbs up to 8". For heavy duty use the No. 900.

Sealed Against Trouble! Communication equipment manufacturers demand Kester Plastic Rosin-Core Solder, because it makes a perfect seal. Prevents high-resistance joints and intermittent open-and-close circuits. KESTER SOLDER COMPANY.

Superior Performance! Rely on the Ray-O-Vac 6 telephone cell for top performance. The RAY-O-VAC CO., has perfected a specially compounded mix for telephone service which permits these cells to give lower cost per hour of telephone service.



Send Your Next Order For Supplies to

KELLOGG — DIVISION OF IT&T

KELLOGG SWITCHBOARD AND SUPPLY COMPANY

A Division of International Telephone and Telegraph Corporation

GENERAL SALES OFFICES: 79 W. MONROE ST., CHICAGO 3, ILL.

BRANCH OFFICES: 406 South Main Street, LOS ANGELES 13, CALIF. — 720 S. W. Washington St., PORTLAND 5, OREGON

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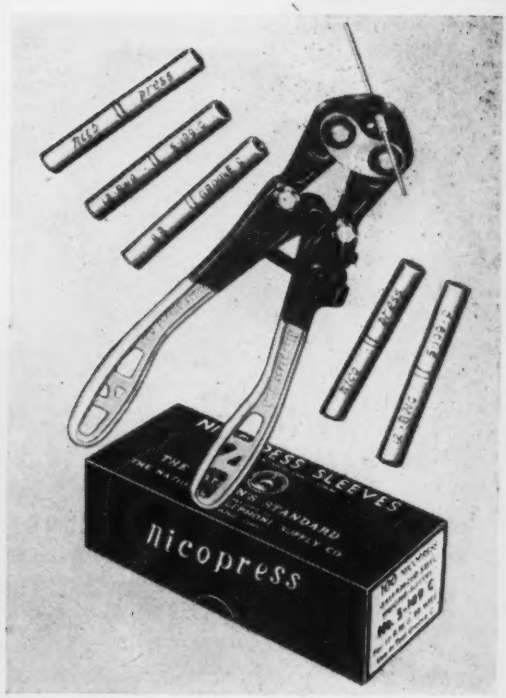
1555 W. 4th Street, MANSFIELD, OHIO

4501 Truman Road, KANSAS CITY 1, MISSOURI

1663 Mission Street, SAN FRANCISCO 3, CALIF.

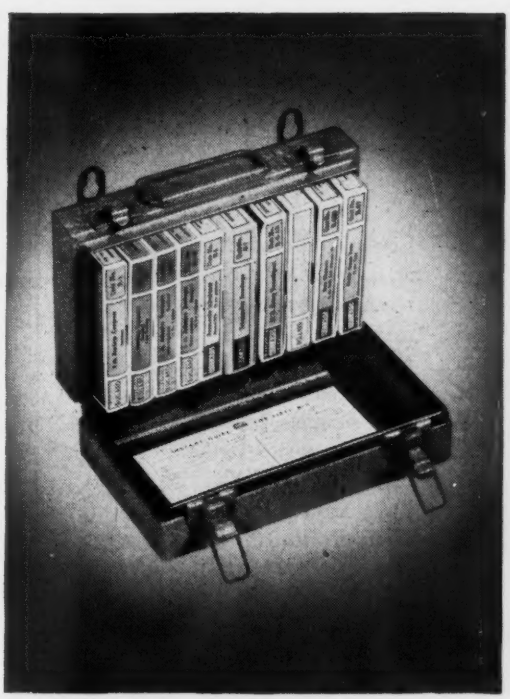
410 No. Syndicate Ave., "Midway Area", ST. PAUL, MINNESOTA

1515 Turtle Creek Blvd., DALLAS 2, TEXAS

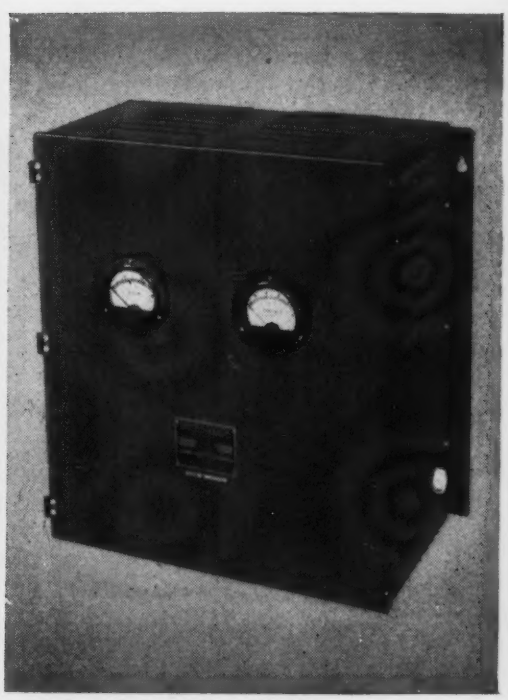


Simple, Quick and Sure! For splicing two wires of different sizes, there's nothing simpler than using Nicopress reducing sleeves and the Nicopress 31-DC tool. Splices are always tight and strong. Made by the NATIONAL TELEPHONE SUPPLY CO.

Life Expectancy is built into Southern Pine Poles and Crossarms. Carefully and thoroughly treated by AMERICAN CREOSOTE WORKS, INC., these poles have the extra durability required for dependable service under toughest climatic conditions.

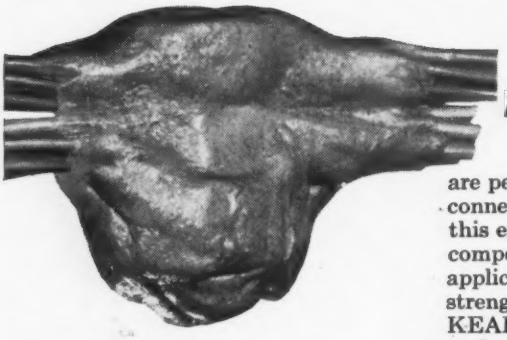


First Aid Kit recommended for use by maintenance or operating crews, or by individuals. Contents of Weatherproof Unit Packet Kit protected always, indoors or out. Assortments available to fill specific requirements. E. D. BULLARD COMPANY.



First Choice of the Telephone Industry! The Raytheon RectiChargeR is fully automatic, maintains constant output voltage regardless of variation of load and line voltage. Never overcharged or undercharged, batteries last longer. RAYTHEON MFG. CO.

Seal Out Trouble...
For Keeps
with KEARNEY AIRSEAL



MOISTURE, CORROSION AND OXIDATION

are permanently sealed out of every connection that is protected by this easy-to-use, hand-moulded compound. Even on underground applications, the high dielectric strength and chemical stability of KEARNEY AIRSEAL give ageless, tight-sealing protection and insulation.

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216

For Better Construction *SAFER* Maintenance

The election of ELMER G. REISLAND (above) as treasurer and assistant secretary of the North Electric Manufacturing Co., Galion, Ohio, was announced recently by G. A. BERTING, president. Mr. Reisland succeeds H. S. BORING, who resigned as treasurer and comptroller of the company on May 31. Mr. Reisland is a Certified Public Accountant, a member of the Society of Certified Public Accountants and the American Institute of Accounting. He has been employed by the North company since March, 1950, and has been the assistant treasurer, assistant secretary for the past several years.

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Looking for an insulator to fill a special low-voltage or communications requirement? No matter how tough and exacting the job, Armstrong has just the right insulator for your lines. For details, contact your supplier or write Armstrong Cork Co., Glass and Closure Div., 295 Fifth Ave., New York 16, N. Y.

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CONTROL SYSTEM:- The Hammarlund "Multi-Gate" Remote Supervisory Control System, designed for use by petroleum refineries, pipeline, railroads, power companies, and other organizations that have widespread physical facilities, is described in a new 4-page 2-color bulletin.

The equipment is designed for operation over wirelines, microwave, or radio lengths, or combinations of these to provide on-off control, switching or signaling at one or several remote points. Control of a given station or other remote point may be exercised from one or more control centers. And report back on the operations may likewise be obtained at any or all of the controlling stations, the company reported.

The literature will be sent on request. Write to *The Hammarlund Manufacturing Company, Inc., 460 W. 34th St., New York 1, N. Y.*

• • •

EFFECTIVE ADMINISTRATION: A leaflet designed as a guide to assist the small business man in improving

the administration of his business, has been issued by the *Small Defense Plants Administration*, 1337 *E. St., N. W., Washington, D. C.*

The leaflet, "*Two Dozen Ideas for Effective Administration*", is Number 19 in the series of Management Aids issued by SDPA's Management Service Division and is available free on request.

The basic job facing the person who heads a small business, the leaflet emphasizes, is "to get things done through people and to make his concern a good place to work." The leaflet draws on the experiences of many successful business leaders and presents 24 specific proposals which, if put into practice, will aid the small businessman in accomplishing this objective and assure him an alert, effective, responsible staff.

• • •

GENERATORS: A new catalog bulletin describing its complete line of Direct Current Generators up to 300 KW has been issued by *Columbia Electric Mfg. Co.*, 4519 *Hamilton Ave., Cleveland* 14, *Ohio.* This pictorial bulletin gives illustrations of available frame sizes and special design features. Details of construction are outlined for field frames, field coils, armatures, commutators,

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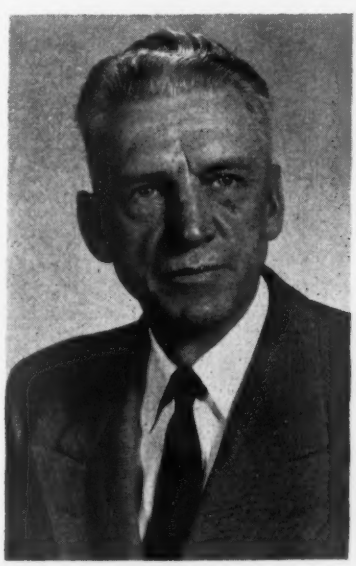

HARRY L. HOLSTRUM, who has been associated with the Republic Creosoting Co. and the Reilly Tar & Chemical Corp. at their Minneapolis, Minn., plant since 1924, has been appointed manager of the plant. He succeeds A. E. LARKIN, who is retiring after 44 years association with the Republic Creosoting Co. and Reilly Tar & Chemical Corp. Mr. Larkin will continue to serve Reilly as a consultant.

Build lines to stay with the CHANCE 8-Way

For best results, use the anchor that pushes *eight* blades into undisturbed earth all around the hole, with no wasted space between blades. This means complete, balanced load distribution.

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Free Literature

Continued From Page 119

brushholders and other component parts.

The manufacturer states that all Columbia generators are built to conform to NEMA and ASA C50 Standards, and can be supplied as either single or two bearing units for coupled or belt drive, and with special features or modifications to suit the particular application. Columbia generators are designed to be driven by gas, gasoline, diesel or steam engines, or by electric motor.

Interested readers may obtain this bulletin by requesting a copy of Section 600.

MICROFILM: — A new folder *"Continuous Microfilm Enlargement Service"* released by *Remington Rand Inc.*, describes how you can get extra records and obtain greater use of microfilmed records.

Accurate reproductions produced at high speed at tremendous savings are available with this new service which allows a convenient means to restore any or all of a microfilm file. In the present business situation microfilm is being increasingly used. En-

Please Turn To Page 126

FRANK W. WALKER has been named regional sales manager of Motorola Communications & Electronics, Inc., Chicago, Ill. The newly created sales region which Walker will head is composed of Southern California, Arizona and Southeastern Nevada. Offices will be in Los Angeles. Walker will direct the sales and service of fixed, mobile and portable two-way radio, microwave, power line carrier and supervisory control systems.

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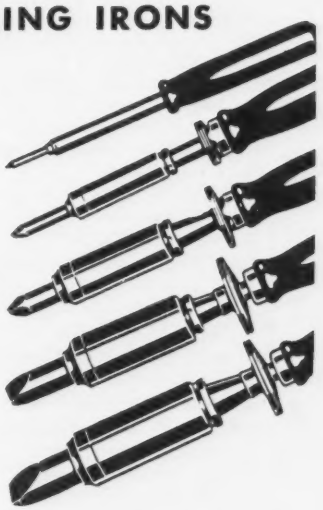

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ADVERTISING, Directories — Planning, Selling, Compiling, Producing, Publishing and Distributing — backed up with over 43 years of Directory Experience and Knowledge. Write or call L. M. Berry & Co., Hulman Bldg., Dayton, Ohio.—[ADV. 1]

ADVERTISING, Directories — *General Telephone Directory Co., 604 Pine Ave., Long Beach, Calif., and 1800 Busse Highway, Des Plaines, Ill.*—[ADV. 2]

BELTS — CLIMBERS — COMPLETE LINEMEN'S EQUIPMENT, *W. M. Bashlin Co., Bashlin Bldg., Grove City 1, Pa.*—[ADV. 3]

BELTS — CLIMBERS — PLIERS — SAFETY STRAPS — CONSTRUCTION TOOLS. *Klein & Sons, Mathias. 3200 Belmont Ave., Chicago 18, Ill.*—[ADV. 4]

BOOTHS—Acoustic Telephone — *Sherron Metallic Corp., 1202 Flushing Ave., Brooklyn 6, N. Y.*—[ADV. 5]

BRUSH & WEED KILLERS — *Thompson manufactures many types of brush and weed killers. Write for helpful information on specific problems. Thompson Chemicals Corp., St. Louis 3, Mo.*—[ADV. 6]

CABLE, All Plastic, *Aerial, Duct, Direct Burial, PBX, Switchboard. — The Ansonia Wire & Cable Co., Ansonia, Conn.*—[ADV. 7]

CORDS, Switchboard (with or without plugs), Instrument (retractable and regular) and Operators — *Commercial Cord & Supply Co., Inc., 26 Main St., Clifton Springs, N. Y.* —[ADV. 8]

CORDS, Switchboard & Telephone — *Runzel Cord & Wire Co., 4727-31 Montrose Ave., Chicago 41, Ill.*—[ADV. 9]

ELECTRIC HOT WATER HEATERS. *Thermostatically controlled for any hot water heater, Vulcan Electric Co., Danvers 17, Mass.*—[ADV. 10]

ENGINEER, CONSULTING — *Telephone financing — J. E. Albert, 185 N. Wabash Ave., Chicago 1, Ill.*—[ADV. 11]

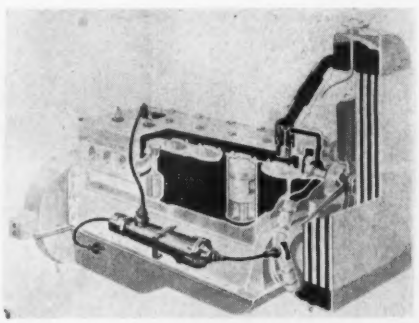
FURNACES — For quickly and economically melting lead and paraffin — *Mutual Liquid Gas Equipment Co., Inc., 3600 W. Imperial Highway, Los Angeles, Calif.*—[ADV. 12]

INSULATORS, Porcelain — *Porcelain Products Inc., Box 300, Findlay, Ohio.*—[ADV. 13]

LIGHTWEIGHT PULLERS — *Coffing Hoist Company, 800 Walters St., Danville 5, Ill.*—[ADV. 14]

PIPE PUSHERS — *Giant Manufacturing Co., South 6th St., at 12th Ave., Council Bluffs, Iowa.*—[ADV. 15]

POLE HOLE DIGGERS — *For derrick mounted trucks. Tele-E-Lect Products, Inc., 9613 Minnetonka Blvd., Minneapolis 16, Minn.* —[ADV. 16]



PRE-HEATER: — How to cut the cost of cold weather operation of diesel and gas engines through the installation of KIM Hotstart electric pre-heaters is the subject of a new catalog released by the manufacturer.

The device plugs into any electrical outlet and through a percolator-like action keeps the engine ready for instant starting even when vehicles are stored outside in sub-zero weather.

The attachment is said to effect substantial economies in warm-up time, engine wear and maintenance, battery-life, fuel consumption, and terminal storage space.

Catalog illustrates typical installations, and specifications are listed for various sizes and types of engines. For your copy, check New Product 554.

POLES, Southern Yellow Pine — *Colfax Lumber & Creosoting Co., Inc., P. O. Box 23, Pineville, La.*—[ADV. 17]

POLES, Southern Yellow Pine — *Taylor Colquitt Company, 290 E. Main St., Spartanburgh, S. C.*—[ADV. 18]

POLES, Southern Yellow Pine — *Texas Creosoting Co., Orange, Texas.*—[ADV. 19]

PROTECTIVE EQUIPMENT — *Reliable Electric Company, 3145 Carroll Avenue, Chicago 12, Ill.*—[ADV. 20]

REBUILT TELEPHONE & SWITCHBOARDS — *Telephone Repair & Supply Company, 1760 Lunt Avenue, Chicago 2, Ill.*—[ADV. 21]

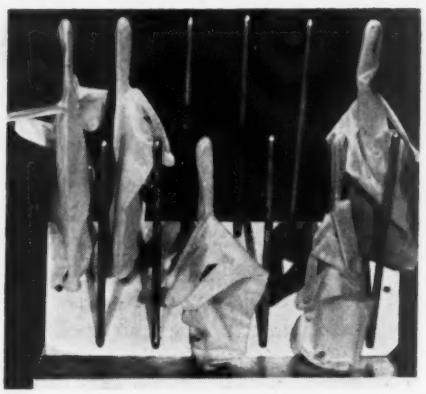
TRUCK BODIES — *Highway Trailer Co., Edgerton, Wisc.*—[ADV. 22]

TRUCK BODIES AND EQUIPMENT — *McCabe Powers Auto Body Co., 5900 N. Broadway, St. Louis 15, Mo.*—[ADV. 23]

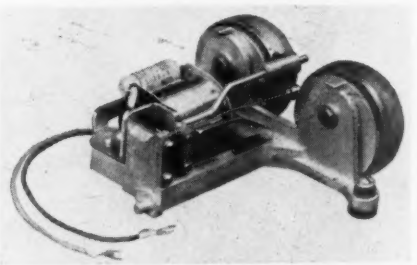
WIRE, Insulated — DATED DROP WIRE — Neoprene or Weatherproof — *Alphaduct Wire & Cable Co., Milltown, N. J.*—[ADV. 24]

WIRE, Insulated Drop and Bronze or Copperweld — *Acorn Insulated Wire Co., Inc., 36 Freeman St., Pawtucket, R. I.*—[ADV. 25]

WIRE, Telephone, *for all inside and outside uses — Whitney Blake Co., New Haven Conn.*—[ADV. 26]



GLOVE DRYER: — Used for drying rubber gloves, this unit is made of aluminum throughout and provided with a drip pan and draining faucet. The complete unit is mounted on a sturdy wooden base in mahogany finish for easy attaching to wall. For complete information, Check New Product 555.



MULTI-FREQUENCY RINGERS: — The new multi-frequency ringers manufactured by the United States Instrument Corp. are especially designed for use in the new Western Electric 591 Telephone Set. The new USI ringers make it possible to obtain the high performance of the new type 500 sets in telephone systems which use Harmonic, Synchromonic or Decimonic ringing frequencies.

USI GB600 and GB700 ringers have retained all the design and construction features of the new W. E. type C ringers and have added features which make available equally superior multi-frequency ringers. The new USI ringers use a small clapper weight on a flexible arm to strike the gongs and a separate resonant weight on a solid arm to

obtain resonance. This is a feature which contributes to performance, tone quality and stability of the USI multi-frequency ringers.

Because the ringer impedance is very high and current drawn is unusually low, it is possible to use up to 10 ringers bridged on a single line. USI ringers are easy to install as they are completely adjusted at the factory to ring at the designated frequency. Only a screw driver is needed to fasten the two captive screws and attach the color coded wires.

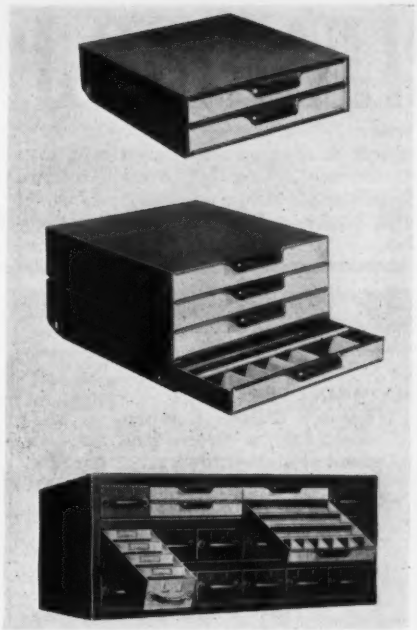
For further information, check New Product 556.

CIRCUIT PROTECTOR: — "Mini-Breaker," the miniature permanent circuit protector that fits like a fuse in any standard Edison base fuseholder, is now available in 10 ampere rating to provide improved circuit protection for small motors used in appliances, blower fans, and similar applications. The new 10 ampere "Mini-Breaker" carries the same Underwriters' Laboratories, Inc. listing as those being produced in 15, 20 and 30 ampere ratings by the manufacturer, Mechanical Products, Inc.

According to the manufacturer anyone can install "Mini-Breaker" in seconds — and restore service merely by pressing in and releasing its shock-proof reset button. While similar in size to the fuse it is designed to replace, "Mini-Breaker" is actually a precision-built, thermally actuated circuit protective device. It safely interrupts excessive overloads and short circuits, tripping instantly on "shorts," yet featuring a built-in time lag to handle temporary starting overloads and line surges. The manufacturer states the device is 100% trip-free, and will not maintain a circuit that has not been cleared of the condition causing the overload. Any attempt to reset against an overload or "short" only increases the speed of tripping. For free literature and price information, check New Product 557.

PARTS CABINET: — Precision Equipment Co., has announced production of all-steel "Little Gem" Tiny Parts Cabinet . . . a new idea in small parts storage.

"Little Gems" consist of two 1½" high drawers in a rugged one-piece welded frame, having an overall size of 3¼" H x 11" D x 11" W. Each drawer is furnished with eight dividers, giving the cabinet a total of 24 adjustable compartments. Adding extra dividers makes possible a total of 56 compartments per unit. Tabs turn up and engage shelf above to prevent tipping when used as an insert

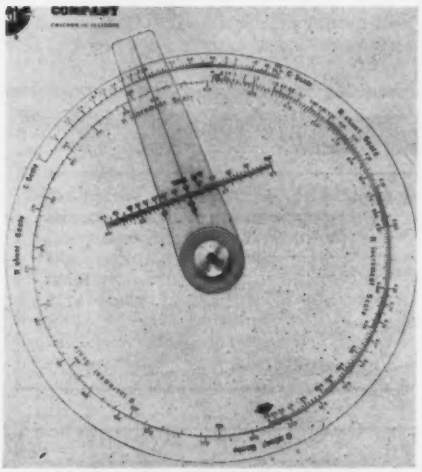


in shelving. Any number of units may be stacked in one solid, rugged assembly. "Little Gems" come in a baked green finish and weigh 10 lbs.

Top illustration shows a single "Little Gem" Cabinet, middle illustration shows two "Little Gems" stacked and lower illustration shows two "Little Gem" Cabinets substituted for four standard drawers. — For complete data, Check New Product 558.

LANTERN: — The Ray-O-Vac Company's newest addition to its lantern line, the Hunter Lantern, is a one-hand lantern with the switch conveniently placed at the top of the handle. It's equipped with a flasher button for signalling. Prefocused, it has a full three-inch vacuum aluminized reflector for spot and piercing beam.

Ray-O-Vac's Hunter Lantern (#398) uses 8 #2LP Ray-O-Vac LEAK PROOF Brand flashlight batteries or one #941 lantern battery. No bulb changing. Uses new PR 15 bulb. For complete data, check New Product 559.



"POT-KIT SERVOCALCULATOR": — The Servotrol Co., Chicago, Ill., has announced the availability of a disc calculator for computing the combined potentiometer resistance and shunt resistor values, required in converting a linear potentiometer to a non-linear function.

On the C scale a value corresponding to a maximum increment of resistance change is readily found. The four increments of resistance change between taps which has been determined on a graph are readily located on the rotor which is locked or aligned with a hair line permitting a reading of the value of the R shunt scale opposite the arrow. This quickly provides the value of the shunt resistor to the total desired resistance — providing actual ohmic value of the shunt resistor to be connected across the respective section.

The pull-out slide provides in addition to the instructions for use a series of typical applications such as one or two end resistors, slope reversals at zero or maximum resistance, slope reversals not at zero or maximum resistance or double slope reversal.

The "Servocalculator" is a component part of the new Servotrol Pot-Kit as well as being available at a nominal price in single or multiple units.

For further details, Check New Product 560.

SEND IN THIS COUPON FOR MORE INFORMATION

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Please forward complete information on the following products and services described in the September, 1953 issue of TELEPHONE ENGINEER & MANAGEMENT. (Check information desired.)

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ADV. 16.....	ADV. 17.....	ADV. 18.....	ADV. 19.....	ADV. 20.....
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WANTED: Experienced telephone lineman and station installers. Neale Construction Company, Inc., 3100 Topeka Blvd., Topeka, Kansas.

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W-D-1A (latest style Signal Corps.) Thermoplastic jacket, 2-conductor, twisted pair (4 copper, 3 steel) ..... per mile $20.00

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5 ft. extended. 3-cond. ea.	$ .90
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Dependable and Economical Telephone Ringing Power Equipment.
Engineered for complete satisfaction.
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Federal Telephone and Radio Corporation step-by-step dial switching equipment consisting of 1000 lines and 2900 terminals of terminal per station equipment including some power, supervisory, and intercepting equipment. Originally installed August 1949. General Telephone Company of California, 1314 Seventh Street, Santa Monica, California.

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Prices F.O.B. Chicago, Ill.

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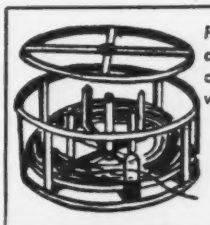
FOR SALE: Two magneto telephone exchanges in Oklahoma Panhandle. Total 265 telephones. Annual gross $8,500. Priced reasonable for cash. J. A. Roberts, Tyrone, Oklahoma.



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"OUR 50th YEAR"

CHURCHILL CABINET COMPANY
CHICAGO 47, ILLINOIS

International Business Machine Corp., New York City has announced the appointment of FERDINAND D. SAUNDERS as a special representative, public utilities. His duties will involve the planning of IBM equipment applications to meet the accounting needs of public utilities. He was previously a representative in the Brooklyn office.

Free Literature

Concluded From Page 121

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Serving Independent Telephone Men Since 1910

Suttle EQUIPMENT CO.

LAWRENCEVILLE ILLINOIS

STROMBERG / CARLSON

transmitter

Published by the makers of famous XY Equipment

VOL. 2, NO. 3 SEPTEMBER, 1953

High Impedance Ringers

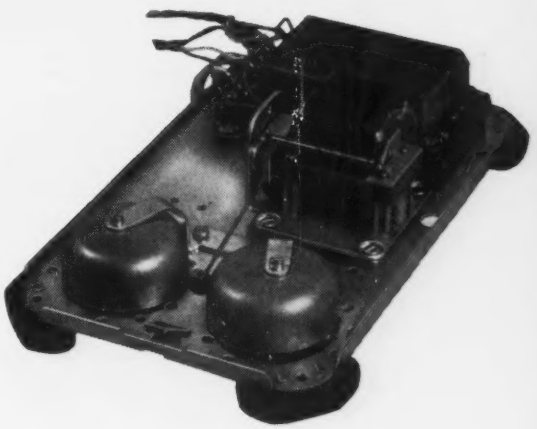
By R. R. Dobbin, Assistant Chief Telephone Engineer

A recent trend in telephone substations is the use of high impedance ringers. As is true of anything new, operating personnel should be familiar with the characteristics of the new product in order to be able to apply the device properly. This article is written in order to facilitate the use and increase the understanding of high impedance ringers.

High impedance ringers are defined by the Telephone Section of the Rural Electrification Administration as ringers whose 1000 cps. impedance is greater than 100,000 ohms. This is now the generally accepted definition of such ringers. Stromberg-Carlson high impedance ringers have impedance values at 1000 cps. from 147,000 ohms to over 500,000 ohms depending upon the ringing frequency.

There are many advantages to using "Hi-Z" ringers. The relative importance of each of the advantages described below depends on specific line conditions.

1. Dialing conditions are improved because less capacitance is bridging the line. This means that dial pulses arrive at the central office switching equipment more nearly like they were started at the dial. (See fig. 1.)
2. There is a smaller load on the ringing generator because at ringing frequencies the "Hi-Z" ringer has roughly twice the impedance of the older type of ringer. This means that more subsets can be installed in a given office before the ringing equipment is loaded to capacity. (See fig. 2.)
3. There is less bridging loss on voice transmission because the shunting effect of the "Hi-Z" ringer is reduced proportionately to its increase in impedance at voice frequencies as compared to older type ringers. This is particularly important on party lines where up to ten subsets and extensions may be bridged on a line. (See fig. 3.)
4. "Hi-Z" ringers reduce the amount of noise induced by an adjacent power line into a divided circuit. The principles involved here must be understood or else a poor condition can be made worse instead of better. The main cause of induced noise troubles is an unbalanced condition from each side of the line to ground. The amount of noise induced depends on *two* independent factors: the greater the unbalance to ground and the lower the ringer impedance shunting the line to ground the greater the noise. These facts make clear the reason why it is necessary to be sure



that the ringer load on a divided circuit is balanced both as to number and types of ringers. Some people expect to apply one "Hi-Z" ringer telephone to a noisy divided circuit and find no interference on that station. As indicated above, this actually could make matters worse if all other stations are using low impedance ringers since the unbalance to ground has been increased. The axiom to remember is that a *balanced ringer load to ground* must be maintained. Because "Hi-Z" ringers have so great an impedance it is not necessary to use gas tubes to isolate these ringers from the line on a noisy divided circuit. A note of caution should be made. Noisy line conditions can be cleared by the use of "Hi-Z" ringers only if the interfering signal is within reason. If the

Figure 1. Total capacitance in series with Ringers bridged across line.

10 Bridged "Hi-Z" Ringers (Type #72) — 3.48 mfds.
10 Bridged Low Impedance Ringers (Type #62) — 10.0 mfds.

Figure 3. 1000 cps. Scalar Impedance.

10 Bridged "Hi-Z" ringers (Type #72) 210,000 ohms
10 Bridged Low Impedance Ringers (Type #62) — 38,000 ohms

Figure 2. Net Impedance of 10 bridged Harmonic Series Ringers at ringing frequency.

Ringing Frequency	Low Impedance (Type #62)	"Hi-Z" (Type #72)
16-2/3 cps.	885 (-54°) ohms	2215 (-32°) ohms
25	680 (-51°) ohms	1805 (30°) ohms
33-1/3	565 (-30°) ohms	1850 (39°) ohms
50	525 (19°) ohms	1205 (45°) ohms
66-2/3	725 (31°) ohms	1195 (13°) ohms

Figure 4

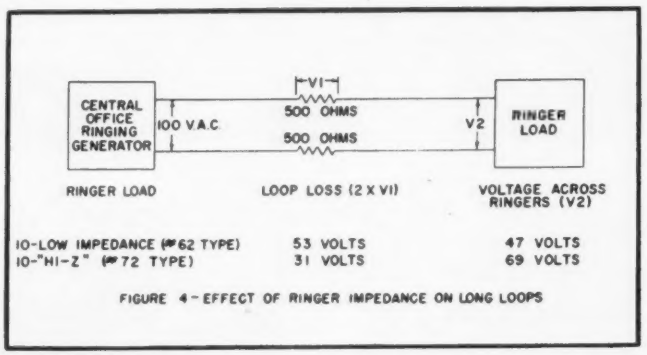


FIGURE 4 - EFFECT OF RINGER IMPEDANCE ON LONG LOOPS

AC voltage from either line to ground is more than 50 volts, it will be necessary to use drainage coils or to improve the line conditions before the "Hi-Z" ringer can be expected to give satisfactory service.

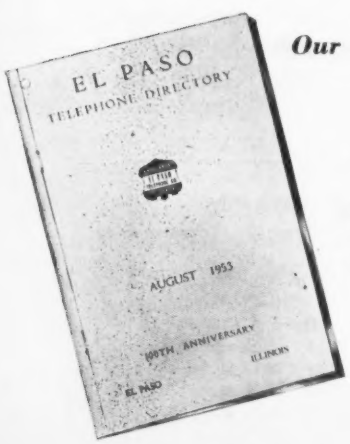
5. Another advantage is that "Hi-Z" ringers are less sensitive to loop length. Since they use less current, the drop of ringing voltage in the loop is not as great. This improves the signaling on long loops. (See fig. 4.)

6. Premature trip on short lines, heavily loaded, is eliminated by using "Hi-Z" ringers. The older type of ringer uses a larger value of series capacitor. If too many are bridging a given line, the current necessary to charge-up these capacitors can operate the ring-trip relay. The low value of series capacitor used with the "Hi-Z" ringer solves this problem. (See fig. 1.)

There are some precautions to be observed in using "Hi-Z" ringers. Since they of necessity are higher in sensitivity, they are sensitive to ringing sources being off frequency. Operating companies should see that their ringing equipment is checked at proper intervals to be sure that the correct frequency is being sent out. This includes rotary machines since many of these are governor controlled. "Hi-Z" ringers usually have a particular capacitor associated with each frequency to obtain some electrical tuning as well as mechanical tuning. When a ringer of a different frequency is installed in a given telephone the proper capacitor, per instructions, must be connected. When "Hi-Z" ringers are added to a line with low impedance units already installed, care must be exercised, particularly, to be sure that a divided circuit is balanced. On noisy lines, it may be necessary to add a ringer on a pole to the opposite side of a given line to insure balance. When it becomes necessary to change a ringer coil, it is advisable to return the ringer to the factory for repair. Modern ringers use Alnico V magnets. This type of magnetic structure cannot be opened up to replace a coil unless facilities are available for remagnetizing the structure. This requires a large magnetizer not usually owned by an operating company. The usual result of this practice by operating companies is weak ringers.

"Hi-Z" ringers are an improvement in the art of signaling. They are here to stay. It becomes necessary therefore to understand their use in order to take full advantage of the improved service they help to achieve.

Congratulations on a Century of Service.



Our best wishes to the El Paso, Illinois, Telephone Company.

MEET J. P. Galligan

Joseph P. Galligan, Manager of Telephone Sales at the Pacific Coast Branch of Stromberg-Carlson since 1945, is known up and down the coast as a good business executive. The dynamic surge so noticeable all over the western states has its counterpart in the increased activity of this office.

Joe also is known to his many friends as the man who goes out of his way to give the friendly greeting, the word of praise or assistance over a rough spot.

Born in Louisville, Ky., Joe attended St. Xavier College, then spent several years with the Louisville Home Telephone Co. prior to joining Stromberg-Carlson installation forces in 1915. Since that time, aside from serving in the Navy during World War I, his service with Stromberg-Carlson has been continuous. The period spent in installation work took him all over the Middle West and the eastern half of the United States. This, from the standpoint of traveling and experience, qualified him for the sales traveler's position he handled for many years in the Middle West, with headquarters in Kansas City.

Joe makes his home in Burlingame, only a few miles down the peninsula from San Francisco, where the temperature is about 10 degrees warmer than in the air conditioned City.

He has a son, two daughters and four grandchildren, all living in the vicinity of Burlingame. Whatever his hobbies were, they have been discarded in favor of the grandchildren. His son and son-in-law are both attorneys. Joe's daughter Ann, and his wife Mae, compete for his spare time not spent looking after the West Coast Division, comprised of eight western states, Alaska, and Hawaii.

He is a member of the Olympic Club, Chamber of Commerce, Our Lady of the Angels Church and Telephone Pioneers of America.

STROMBERG-CARLSON transmitter

Pine Island, Minn., Modernizes– Follows Lead of Telephone Co.

New telephone office at Pine Island is attractive and functional.

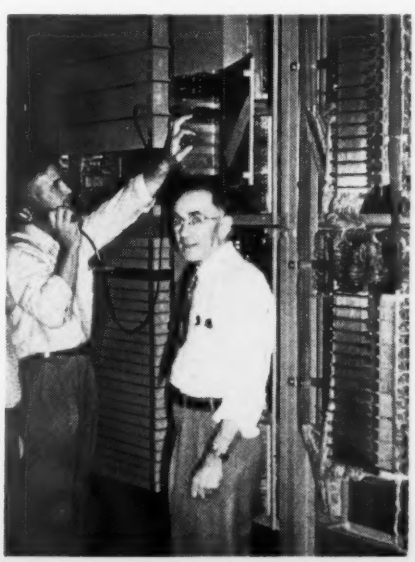
A telephone man tries to be a good community citizen. This has always been true of James P. Keane, President of the Pine Island Telephone Co. and his son Dennis Keane, Manager. Instead of "trying to make do" with old equipment and buildings, they chose to build a plant of which all the townspeople are justly proud. Their new dial system was put into service July 1, 1953.

There is something about an XY Dial System in a beautiful new building which gives people confidence in the future of their city; this summer one could see bustling activity in all the business district — new sewers, street surfacing, remodeling of buildings. Pine Island wants to take its place among the growing cities of southeastern Minnesota.

Since Pine Island is the center of a progressive rural area, subscribers on the surrounding farms are given the same grade of dial service as is offered in town.

The neighboring city of Rochester, Minn., is expanding in the direction of Pine Island; as soon as the doctors and other professional people of this famous medical center can be provided with the telephone service they need — the type now in operation at Pine Island — this expansion will have real force.

One feature in the telephone building deserves mention: the XY switching equipment is in one room, the power section in an adjoining room, separated by a fire wall and a large window. This has a distinct advantage in better control of atmospheric conditions.



← *Mr. James P. Keane (foreground) and Edward Pederson, wire chief.*

→ *Mr. Dennis J. Keane, Manager, Pine Island Telephone Co.*

Sons Carry On

Mr. W. T. Henning, left, and Mr. J. T. Henning, right, co-managers of the Cameron Telephone Co., with Mr. Beckton of B. O. Vanort Engineers, Inc.

Mr. W. T. Henning of the Cameron Telephone Co., started the dial program for his company which is now being carried on by his two sons — Mr. W. L. Henning and Mr. J. T. Henning.

The first conversion in the program is the 140-line XY Dial exchange at Carlyss, Louisiana, cut into service on July 15, 1953. Financing was through the telephone division of the R.E.A. and engineering was by B. O. Vanort Engineers, Inc. of Charlotte, No. Carolina.

Plans for continuing this modernization in the other exchanges are underway.

Blair Stone Scores Ace On Tallahassee Course

Blair Stone hasn't much time for golf, what with being Vice President of the Southeastern Telephone Co. of Tallahassee. So it was quite a thrill to score one of the two aces reported at the Tallahassee Country Club course through the early season. Mr. Stone made his hole-in-one on the 16 (par 3) hole. The last recorded ace on this hole was made several years ago by the wife of the local pro. Any telephone "execs" looking for a good partner for that next convention?

STROMBERG-CARLSON transmitter

Villisca, Iowa, Well Pleased with its XY

L. to r.: Phillip B. Garland, Manager; Max M. Poston, Secretary; and A. J. Rusk, President of Villisca Farmers Telephone Co.

10 P.M. March 21: "We held our breath and pulled the heat coils — fearing the worst and hoping for the best. Maybe the good Lord was with us, for everything went just as we had planned and worked for during the last two years."

Thus Phil Garland, Manager of the Villisca Farmers Telephone Company, spoke at the Iowa Convention. Mr. Garland came with the company in 1950 after 21 years experience in telephone work.

400 lines of XY Dial serve the town of approximately 2,000 and the surrounding rural area. Indications are that the planning made excellent provision for the years to come.

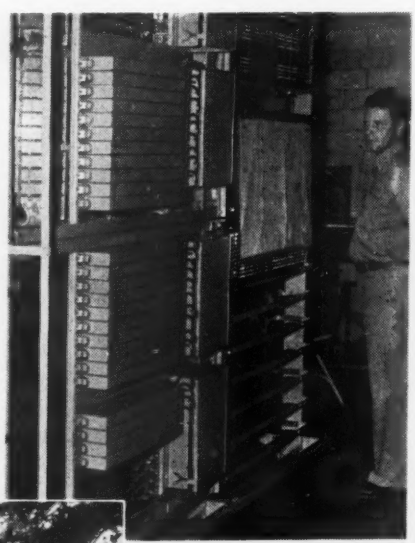
The new plant is the result of excellent cooperation between management and the subscriber-board members.

Valuable assistance was given by the Iowa Independent Telephone Association and its capable secretary, William F. Miller, in arranging for the Articles of Incorporation and other necessary preliminaries.

Improvements in service and a revision of rates went hand in hand. "Streaks of rust" to the outlying districts were replaced with new cable and open wire; dial equipment was ordered after obtaining a loan from the Stromberg-Carlson Credit Corporation.

"It is gratifying to hear the compliments from well-pleased subscribers," said Mr. Garland. "In many cases those who had complained before went out of their way to express their appreciation of the XY System."

Shortly after the conversion Mr. Garland left operation of his company in the hands of his capable wire chief, Donald Woodard, while attending the XY Customers School in Rochester, N. Y.



Phil Garland listens to the pleasant ticking of the XY switches.

This fine new building houses new XY equipment and telephone company office at Villisca.

Remarkable Job of Rehabilitation

Thirty-four days to completely restore service to all subscribers after total demolition in a tornado! That has happened in the Bradley, Okla., exchange of the Southwestern States Telephone Co.

Mr. and Mrs. R. B. Marshall, the local operators, are back in business again; a Stromberg-Carlson No. 125 Switchboard is the operating heart of one of the most modern magneto exchanges in the state. Temporary service during reconstruction was given over a switchboard loaned by Herman Graves of Purcell.

The Marshalls are extremely grateful for the generosity and helpfulness of telephone people everywhere; especially to the employees of the Southwestern States Telephone Co. who donated their labor and experience on assigned days off.

Ed. Note — *Our thanks to Mr. Hugh Straughn, Secretary of the Oklahoma Telephone Association and to Southwestern States Telephone Co. "News" for June, where the complete story appeared.*

Future Assured At Ringgold, Louisiana

While a few may long for "the good old times" others step forward into a challenging but promising future.

Mr. C. C. Tomme, President and General Manager of the Ringgold Telephone Company, and his customers are delighted with the XY Dial Equipment recently installed. 250 lines, serving 525 subscribers, were placed in service early this summer.

Inset of C. C. Tomme, President

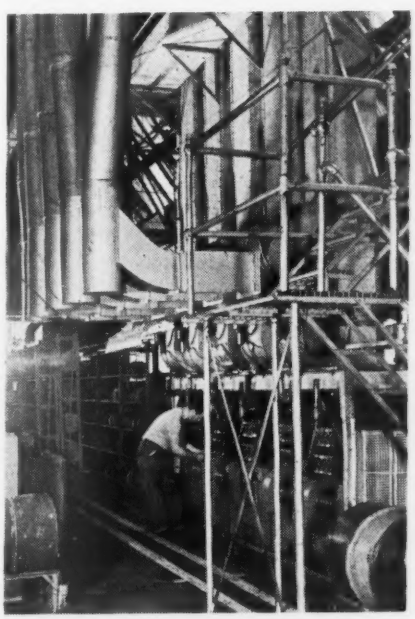
STROMBERG-CARLSON transmitter

England Calling!

Thank you, Mr. C. T. M. Farmer, for this photograph of the "Hawes trough" flat multiple switchboard installed in Glasgow around 1884 and still in useful service in 1911. The courtesy of the Postmaster General and the Inland Tele-Communications Dept. Headquarters is gratefully acknowledged.

Your fine letter telling of your interest in our "Old Switchboard" series is greatly appreciated. Also of interest is your note that Alexander Bell set up a telephone line in England in 1877, and these instruments are preserved at Plymouth.

Glasgow, Scotland Exchange in the "Gay Nineties."



Stromberg-Carlson has its own lacquer towers for closer control.

FACTORY TRIP

Telephone and Switchboard Cord Department

New, larger quarters for stepped-up production; new processes for making a still better product; and supervision which has the experience which comes only with time — that is Dept. 70 which we visit this month as part of our continuing tour of the Stromberg-Carlson plant.

In the photo below we see the cord assembly section. Foreman Earl W. Vogt (standing, left center) looks forward to membership in the Quarter Century Club next year. Sadie Winkler, whose service spans even more years, is Assistant Foreman — the first woman to be given this major responsibility. Geraldine Strem and George Fitzsimmons are group leaders.

What is new? High-tenacity nylon braid has become the standard for switchboard and instrument cords. Field tests have proved the greatly-extended life of cords braided with this material. New spinning machines which stop automatically whenever any material — wire, tape or yarn — runs out, cutting down wastage. The core for XY Switch cables have all nylon-insulated conductors for ease in soldering; after wires are drawn through the terminals of this 36-point plug, the nylon covering melts off while making the soldered connections — saving the time formerly used in stripping.

Lacquered wire is continually under study at Stromberg-Carlson; the process was adopted in 1944 when in its infancy. This and other developments have come under the guidance of Ernest Goral, Materials Engineering Department.

New cord assembly room. XY Switch cords in foreground.

Battery of multi-color braiding machines.

STROMBERG-CARLSON **transmitter**

(A) Standing, l. to r. Lee Dennison, New York Telephone Co.; Randall Becker; Donald MacMillan, Stromberg-Carlson Branch Manager; David Balis, Stromberg-Carlson Installation Manager; E. Scott Rose; Harry Fisk; Frank Crawford, Stromberg-Carlson Sales. Kneeling, left, John Cornelius, Stromberg-Carlson Engineer; Gene Sullivan, Stromberg-Carlson Installation Foreman.

New XY Office for Middleburgh, New York

A veteran telephone man, who still likes to climb poles at age 74, and a promising young manager whose concern is the future, share the enthusiasm of the Middleburgh citizens for their new XY Dial system. E. Scott Rose, president and treasurer, is still very active in the company; Randall F. Becker is vice-president and general manager; Marjorie S. Becker is secretary; Dorothy Schindley, assistant secretary; and Harry Fisk, accountant.

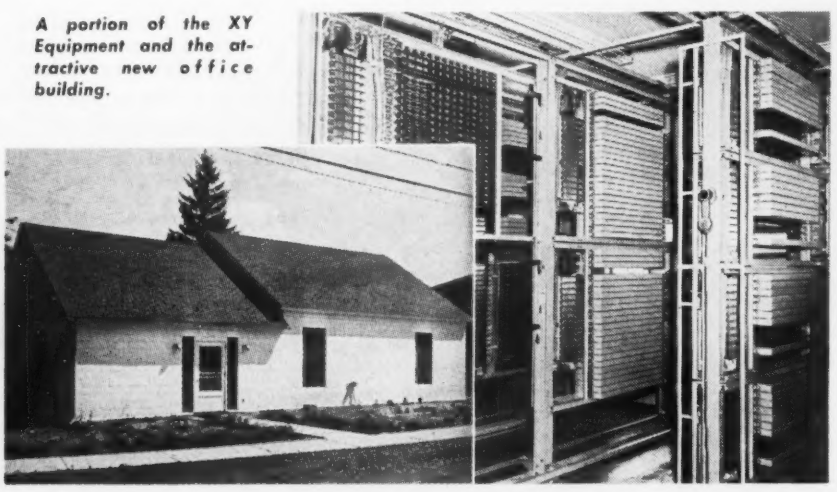
Over 1,000 subscribers are served by the XY terminal pay station system in the town of Middleburgh, in addition to the subscribers of the Breakabeen district now served by a satellite XY Dial exchange. Franklinton, another rural community, had previously been converted to dial operation.

During the cut-over proceedings, company and town officials praised the operators for the many courtesies and helpfulness beyond the call of duty. Customer dialing now completely replaces all manual service. Toll calls are trunked to Cobleskill. This was also a time to recall the tireless efforts of the telephone company in keeping the lines open despite the snow and sleet of which this Schoharie Valley town has more than its share.

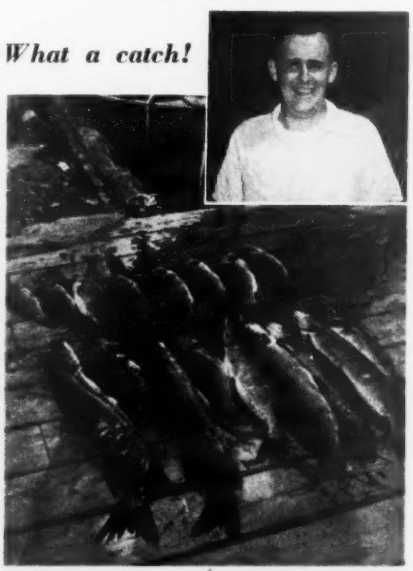
Extension of modern telephone service in the rural areas is the job remaining; plans are underway for this.

Mr. Becker has recently attended the XY Customer's School at Rochester, N. Y.

A portion of the XY Equipment and the attractive new office building.



What a catch!



Dream of every fisherman — and it came true for Bob Slayton, National Sales Engineering in the Rochester office. Temagimi Lake, Canada surrendered these to the frying pan — they were delicious! This may seem like a challenge. It is. Take us up; send a photo.

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THE BACK OF THE BOOK

BY JOHN G. REYNOLDS

A POLE STANDS IN PORTLAND

FROM *Pacific Telephone Magazine* we learn that Mrs. Ivy C. Feldman is the only person in Portland, Ore., with a telephone pole of her own.

"I can't bear to see it go," Mrs. Feldman had said, when the linemen came to take it away.

Now, the ivy-covered 20-foot pole belongs to her, because Pacific Bell listened and understood. And it stands in front of her home because the City Council passed a special ordinance granting authority to leave it there.

But that's the end of the story . . . the beginning goes back 20 years, and beyond.

It really started when Mrs. Feldman and her husband cut ivy slips from an old vine on a tumbledown homestead, 32 years ago, and planted them around the back porch of their Portland home.

Twelve years later, Mrs. Feldman's nine-year-old son, Danny, set out a few sprigs for his mother at the base of the telephone pole. Today, ivy is everywhere around the cottage and the pole is wrapped in a living coat of green.

But the passing years brought other changes. Danny grew up and went to college. War came. Danny joined the Army — was sent overseas. Danny's father died. Danny's mother was left alone with her ivy and her memories, waiting for her boy to return.

Later, the telephone lines were moved across the street. The pole's work was finished. With it would go the ivy it had worn so long. And with the ivy — the men who came to remove it learned — would go a part of Mrs. Feldman's life.

That's why Pacific Bell and the Portland City Council took the steps they did. That's why a Portland mother has a living memory of a son who will never come home.

Sgt. Daniel H. Feldman died serving his country, and lies in a soldier's grave in Italy.

IN CASE YOU HADN'T HEARD

"TELEDU" IS NOW the official Welch word for television. In the language of Wales it means "recording at a distance." In the English dictionaries it translates into "stinking badger of Java and Sumatra" . . . Page-Ette is a new, six ounce shirt pocket size radio which is for business men, doctors and others who want their offices to keep in touch with them wherever they are. A code signal is sent out and then the message is transmitted and repeated until the radio wearer calls the station and acknowledges the call. Radio is serviced for a monthly charge of $20 plus tax. Service is now available in Cincinnati, St. Louis, Philadelphia and Cleveland. Cincinnati Technical Institute is in charge of the overall operation.

THE TAX SQUEEZE

CHARLES R. SLIGH, Jr., who is president of the National Association of Manufacturers, has been studying how deep the tax takers dig into everybody's income. And Mr. Sligh does mean everybody's income, not just the incomes of the well heeled.

It works out this way, his statement says:

Families with $3,000 a year pay 24.8 per cent of their incomes to federal, state and local tax collectors.

Those with $4,000 incomes pay 27 per cent, and the $5,000 families give up 30.5 per cent.

At $7,500 a year, a family gets tapped for 36.9 per cent in taxes; at $10,000, 40 per cent.

President Sligh of NAM says that it's time we understood better what it would mean to us as individuals and families if Congress acted favorably on tax-reduction proposals now under consideration. A $3,000 a year family, says Sligh, would save $48 a year on its tax bill, a $5,000 family $120 a year. They would have that much more to spend for themselves or to invest.

And of course, with real government economy, tax savings very much greater than that can be made.

Now would be a good time to hunt up your congressman while he's home on vacation. Tell him it's real government economy you want, not explanations of why it can't be had.

It's not what you get, it's what you're allowed to keep that sets your family's living standard.

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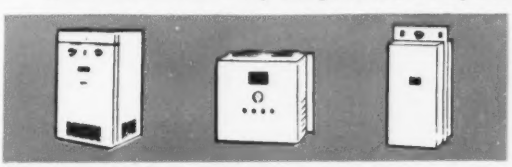

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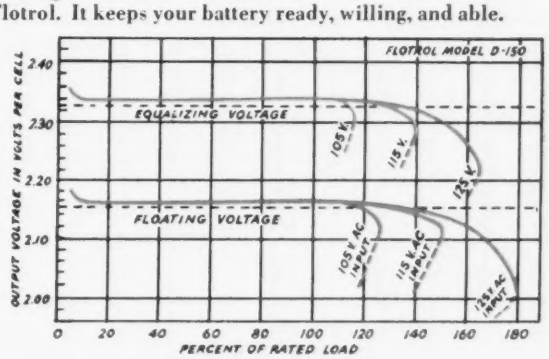

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Application of our proven standards of measurement enables us to accurately pre-determine the maximum amount of net revenue which a directory should yield. Then, our obligation is to make the directory produce that amount of net profit for the telephone company. Our organization has consistently demonstrated the ability to do both.

Your company may be realizing more net profit from its current directory than it did from the previous issue. Yet it is entirely possible that you are still not receiving maximum potential net revenue from your directory operations.

At your request, a representative from our nearest office will make a comprehensive study and tell you whether or not you are making as much net profit as you should from your telephone directory. There is no cost or obligation for this service, so why not telephone or write today? You have a great deal to gain and absolutely nothing to lose.

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